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U.S. GEOLOGICAL SURVEY
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SEP 21 1981
Rock Springs, Wyoming

RILEY RIDGE PROJECT
RIGHT-OF-WAY APPLICATION
AND
APPLICANT DATA

SEPTEMBER, 1981

SUBMITTED TO THE
WYOMING STATE OFFICE
U.S. BUREAU OF LAND MANAGEMENT
BY
NORTHWEST PIPELINE CORPORATION

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NORTHWEST PIPELINE CORPORATION

315 EAST 200 SOUTH
P.O. BOX 1526
SALT LAKE CITY, UTAH 84110
801-534-3600

U.S. GEOLOGICAL SURVEY
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Rock Springs, Wyoming

September 18,

Please find enclosed Northwest Pipeline Corporation's Right-of-Way Application for the Riley Ridge Project (La Barge Low Btu Gas Project).

Any questions regarding this application should be directed to William J. Huhtala, Northwest Pipeline Corporation (801) 534-3173.

William J. Huhtala
Manager
Environmental Affairs

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U.S. GEOLOGICAL SURVEY
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SEP 21 1981
Rock Springs, Wyoming

United States Department of the Interior
Bureau of Land Management
Wyoming State Office
2515 Warren Avenue
P.O. Box 1828
Cheyenne, WY 82001

Re: R/W 81366 SP: Riley Ridge
Gathering System
R/W 81367 SP: La Barge Low-BTU
Gas Plant

Dear Sirs:

We submit herewith application for pipelines and related facilities upon and across public lands in Lincoln, Sublette and Sweetwater Counties, Wyoming.

In connection with said application, we enclose the application, with common carrier stipulation, project description, maps and land schedules.

Because we understand that this will be a cost-reimbursable project, no administrative fees are submitted herewith. Northwest agrees to pay the initial advance deposit for the special project account immediately upon receipt of a bill from the Bureau of Land Management.

Federal Energy Regulatory Commission's Guidelines for Construction of Natural Gas Transmission Facilities, as well as other State, Local and other Federal agency guidelines and regulations will be observed where applicable. Mitigating measures and techniques will be employed as described herein.

Northwest Pipeline Corporation will be bound by applicable regulations contained in Title 43 of the Code of Federal Regulations Group 2880 (43 CFR 2880), as they exist or may be amended in the future, specifically 2881.2, which sets out several terms and conditions which will be included in the right-of-way grant.

We trust that the information contained herein will be sufficient to commence the processing of our application. Additional or supplementary information will be supplied on request or as it becomes available.

Sincerely,
NORTHWEST PIPELINE CORPORATION

By John W. Wilson
John W. Wilson
Attorney-in-Fact

cc: Robert Bennett
BLM
P.O. Box 1828
Cheyenne, WY 82001

Dave Pomerinke
BLM
P.O. Box 1828
Cheyenne, WY 82001

Don Sweet
Rock Springs Dist. Manager
BLM
P.O. Box 1869
Rock Springs, WY 82901

Steve Howard
Kemmerer Resource Area Manager
BLM
P.O. Box 632
Kemmerer, WY 83101

Fred Wyatt
Pindale Resource Area Manager
BLM
P.O. Box 768
Pinedale, WY 82941

Chris Hanson
Environmental Scientist
USGS
P.O. Box 1170
Rock Springs, WY 82901

Jay Carlson
District Ranger
Bridger-Teton National Forest
Big Piney, WY 83113

(5) Bob Pizel
BLM
Office of Special Projects
555 Zang Street
Third Floor East
Denver, CO 80228

The Honorable Ed Herschler
Governor of Wyoming
Capital Building
Cheyenne, WY 82002

Office of Industrial Siting
18th and Carey
Suite 500, Boyd Bldg.
Cheyenne, WY 82002

Richard Hoffman
Chief, Environmental Evaluation Branch
FERC
Room 7102
Washington, DC 20426

STIPULATION

Northwest Pipeline Corporation, applicant for pipelines and related facilities right of way, hereby agrees to the following:

The applicant for right of way agrees to operate the pipeline and related facilities as a common carrier in accordance with the provisions of the Mineral Leasing Act, and, within 30 days after the request of the Secretary of the Interior, to file rate schedule and tariff for the transportation of oil or gas, as the case may be, as such common carrier with any regulatory agency having jurisdiction over such transportation, as the Secretary may prescribe.

It being distinctly understood, however, that this common carrier provision shall not apply to any natural gas pipeline operated by any person subject to regulation by a State or municipal regulatory agency having jurisdiction to regulate the rates and charges for the sale of natural gas to consumers within the State or municipality.

Dated this 18th day of September, 1981.

NORTHWEST PIPELINE CORPORATION

By John W. Wilson
John W. Wilson
Attorney-in-Fact

R/W 81366 SP
81367 SP

Serial No.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR
PIPELINES AND RELATED FACILITIES

Land Office: Cheyenne, Wyoming Serial No:

Northwest Pipeline Corporation, a Delaware Corporation whose principal place of business is 315 East Second South, Salt Lake City, Utah 84111, applies hereby under the Act of February 25, 1920 (41 Stat. 449; 30 USC § 185), as amended, for a right of way to construct, maintain and operate certain pipelines and related facilities upon and across Federal Lands located within the State of Wyoming.

Applicant is subject to regulation under the Natural Gas Act (15 USC § 717 et seq.) and comes within the Act of August 12, 1953 (Public Law 83-253).

Applicant agrees that it will be bound by the provisions of 43 CFR Part 2880 as they exist or may be amended in the future.

Notice of actions pertaining to this application may be sent to:

John W. Wilson
c/o Northwest Pipeline Corporation
P.O. Box 1526
Salt Lake City, Utah 84110

A description of the proposed pipelines and related facilities, the length of right of way requested and the Federal lands affected are included in the attached land schedule and project description.

Permanent pipeline right of way will be fifty (50) feet in width across Federal land, with an additional strip twenty-five (25) feet in width for construction only. Right of way across lands owned in fee and lands owned by the State of Wyoming will be seventy-five (75) feet in width.

Permanent railroad right of way will be fifty (50) feet in width across Federal land with an additional strip twenty-five (25) feet in width for construction only. Right of Way across fee and State lands will be fifty (50) feet in width with an additional twenty-five (25) feet used for construction.

Power line right of way will be fifty (50) feet in width across Federal, State and fee lands.

The plant site will contain 640 acres.

Applicant has made no unauthorized use of the lands affected by this application except as provided by 43 CFR 2882.1 (d).

Subsequent to acquiring the right of way for the plant site, applicant may seek to obtain fee patent for said site. Applicant expressly reserves the right to pursue fee title to said site, subject to the rules, regulations and policies affecting disposal of public lands at that time.

Articles of Incorporation, Corporate bylaws, authorization to conduct business in the State of Wyoming, reference to financial and technical capabilities, Power of Attorney, documents concerning ownership of Northwest Pipeline Corporation and other required disclosure documents have previously been filed with the Department of the Interior, as provided by 43 CFR 2882.2-1 (f).

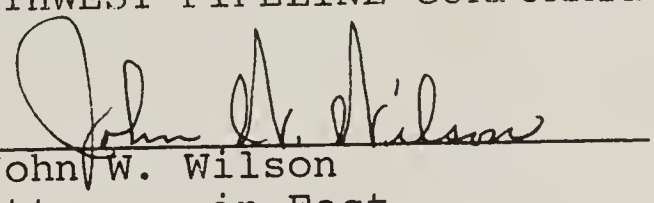
Additional right of way may be necessary in connection with the proposed facilities. Such additional right of way will be requested as the needs are clearly identified.

Applicant requests the subject right of way for a term of thirty (30) years, with a right of renewal clause.

Applicant will promptly furnish all additional and/or supplementary information required by the administering agencies on request. Requests for such information should be directed in care of the party designated to receive notice of actions, supra.

In witness whereof, the applicant has caused these presents to be executed this 18th day of September, 1981.

NORTHWEST PIPELINE CORPORATION

By 
John W. Wilson
Attorney-in-Fact

LAND SCHEDULES

Craven Creek Alternative

PLANT SITE

Lincoln County, Wyoming
T. 22-N, R. 113-W, 6 PM

Sec. 26: All

Federal Lands: 640 Acres

PROPOSED SALES PIPELINE

Lincoln County, Wyoming

T. 22-N, R. 114-W, 6 PM

Sec. 24: NW¼NE¼
NE¼NE¼

T. 22-N, R. 113-W, 6 PM

Sec. 19: NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼
SE¼NE¼

20: SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

21: SW¼NW¼
NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

22: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

23: NW¼SW¼
NE¼SW¼

Federal Lands:	5.5 miles
Permanent:	33.333 acres
Temporary:	16.667 acres
Total:	50 acres

PROPOSED GATHERING TRUNK PIPELINE

Sublette County, Wyoming
T. 27-N, R. 113-W, 6 PM

Sec. 9: NW¼SW¼
SW¼SW¼

21: NW¼NE¼
NE¼NE¼
SE¼NE¼
SE¼NE¼
SE¼SE¼

22: SW¼SW¼

27: NW¼NW¼
SW¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
NW¼SE¼
SE¼SW¼

34: NW¼NE¼
SW¼NE¼
NW¼SE¼
NE¼SE¼
SE¼SE¼

Lincoln County, Wyoming
T. 26-N, R. 113-W, 6 PM

Sec. 3: Lot 1
SE¼NE¼

2: SW¼NW¼
NW¼SW¼
SW¼SW¼

11: NW¼NW¼
NE¼NW¼
SW¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼

14: NE¼NW¼
NW¼NE¼
SW¼NE¼

35: NE¼NE¼
SE¼NE¼

T. 25-N, R. 113-W, 6 PM

Sec. 1: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼

12: NW¼NW¼

T. 25-N, R. 113-W, 6 PM

Sec. 11: NE¼NE¼
SE¼NE¼
NE¼SE¼
SE¼SE¼

14: NE¼NE¼
SE¼NE¼
NE¼SE¼
NW¼SE¼
SW¼SE¼

23: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

26: NE¼NE¼
SE¼NE¼
NE¼SE¼
SE¼SE¼

35: NE¼NE¼
SE¼NE¼
NE¼SE¼
SE¼SE¼

T. 24-N, R. 113-W, 6 PM

Sec. 3: Lot 2
NW¼SE¼
NE¼SW¼
SE¼SW¼

10: NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼

15: NE¼NW¼
NW¼NW¼
SE¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼

22: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼

21: SE¼SE¼

28: NE¼NE¼
SE¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SW¼

T. 24-N, R. 113-W, 6 PM

Sec. 33: NE¼NW¼
SE¼NW¼
SW¼NW¼
NE¼SW¼
NW¼SW¼
SW¼SE¼

T. 23-N, R. 113-W, 6 PM

Sec. 4: NW¼NW¼

5: NE¼NE¼
SE¼NE¼
NE¼SE¼
SE¼SE¼

8: NE¼NE¼
NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼

17: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼

20: NW¼NE¼
SW¼NE¼
SW¼SE¼

29: NW¼NE¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
lot 4

T. 23-N. R. 114-W, 6 PM

Sec. 25: SE¼SE¼

36: NE¼NE¼
SE¼NE¼
NE¼SE¼
NW¼SE¼
SW¼SE¼

T. 22-N, R. 113-W, 6 PM

Sec. 6: Lot 3
SE¼NW¼
NE¼SW¼
SE¼SW¼
SW¼SW¼

T. 22-N, R. 113-W, 6 PM

Sec. 7: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼

18: NW¼NW¼

T. 22-N, R. 114-W, 6 PM

Sec. 13: NE¼NE¼
SE¼NE¼
NE¼SE¼
SE¼SE¼

24: NE¼NE¼
NW¼NE¼

T. 22-N, R. 114-W, 6 PM

Sec. 19: NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼
SE¼NE¼

20: SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

21: SW¼NW¼
NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

22: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

23: NW¼SW¼
NE¼SW¼

Federal Lands: 36.3 miles
Permanent: 220 acres
Temporary: 110 acres
Total: 330 acres

PROPOSED GATHERING PIPELINES

Sublette County, Wyoming

T. 30-N, R. 115-W, 6 PM

Sec. 36: SW¼NW¼ (USFS)
SE¼NW¼ (USFS)
SW¼NE¼ (USFS)
SE¼NE¼ (USFS)
NW¼NW¼ (USFS)

T. 30-N, R. 114-W, 6 PM

Sec. 31: NW¼NW¼
NE¼NW¼
NW¼NE¼

30: SW¼SE¼
SE¼SE¼

T. 29-N, R. 114-W, 6 PM

Sec. 13: NE¼NW¼
NW¼NE¼
SW¼NE¼
SE¼NE¼
NE¼SE¼

T. 29-N, R. 113-W, 6 PM

Sec. 18: NW¼SW¼
SW¼SW¼

19: NW¼SE¼
NE¼SE¼
SE¼SE¼

20: SW¼SW¼

29: NW¼NW¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
SW¼SE¼

32: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼

T. 28-N, R. 113-W, 6 PM

Sec. 6: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

7: NE¼NE¼
SE¼NE¼

8: SW¼NW¼
NW¼SW¼
SW¼SW¼
SE¼SW¼

T. 28-N, R. 113-W, 6 PM

Sec. 17: NE¼NW¼
SE¼NW¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

28: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼

33: NW¼NW¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼

T. 27-N, R. 113-W, 6 PM

Sec. 4: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼
SE¼SW¼
SW¼SE¼

Sublette County, Wyoming

T. 29-N, R. 114-W, 6 PM

Sec. 14: NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
NW¼NE¼

Sublette County, Wyoming

T. 29-N, R. 114-W, 6 PM

Sec. 10: NW¼NW¼

Sublette County, Wyoming

T. 29-N, R. 114-W, 6 PM

Sec. 17: NE¼SE¼

Sublette County, Wyoming

T. 29-N, R. 114-W, 6 PM

Sec. 8: SW¼NE¼

Sublette County, Wyoming
T. 29-N, R. 115-W, 6 PM

Sec. 12: NE¼SE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 7: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼
SE¼SE¼

8: SW¼SW¼
SE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 26: SW¼SW¼
SE¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 28: NW¼NW¼

29: NE¼NE¼
SE¼NE¼
NE¼SE¼

Sublette County, Wyoming
T. 28-N, R. 115-W, 6 PM

Sec. 3: SW¼SW¼ (USFS)
NW¼SW¼ (USFS)
NE¼SW¼ (USFS)
SE¼NW¼ (USFS)
SW¼NE¼ (USFS)
NW¼NE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 31: SE¼SW¼
SW¼SE¼
NW¼SE¼
SW¼NE¼
SE¼NE¼
NE¼NE¼

32: NW¼NW¼

29: SW¼SW¼
SE¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 115-W, 6 PM

Sec. 35: NW¼NW¼ (USFS)
NE¼NW¼ (USFS)
NW¼NE¼ (USFS)
NE¼NE¼ (USFS)

36: NW¼NW¼ (USFS)

25: SW¼SW¼ (USFS)
SE¼SW¼ (USFS)
SW¼SE¼ (USFS)
NW¼SE¼ (USFS)
NE¼SE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 30: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

29: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

28: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

27: NW¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

23: SW¼SE¼
SE¼SE¼

24: SW¼SW¼
NW¼SW¼
NE¼SW¼
SE¼NW¼
NW¼NE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 19: SW¼SW¼
SE¼SW¼
SW¼SE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 30: NW¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 30: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼

19: SW¼SE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 29: NW¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 32: NW¼NW¼
NE¼NW¼

29: SE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 31: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

32: SW¼SW¼
SE¼SW¼
NE¼SW¼
NW¼SE¼

Sublette County, Wyoming
T. 28-N, R. 114-W, 6 PM

Sec. 1: NW¼NE¼
NE¼NE¼

T. 28-N, R. 113-W, 6 PM

Sec. 6: NW¼NW¼
NE¼NW¼
NW¼NE¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 16: NW¼SE¼
NE¼SW¼
SE¼NW¼
SW¼NW¼
NW¼NW¼

17: NE¼NE¼

8: SE¼SE¼

17: NW¼NE¼
NE¼NW¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 32: SW¼NE¼
SE¼NE¼

33: SW¼NW¼

Sublette County, Wyoming
T. 28-N, R. 115-W, 6 PM

Sec. 24: NW¼SW¼ (USFS)
NE¼SW¼ (USFS)
NW¼SE¼ (USFS)
NE¼SE¼ (USFS)

T. 28-N, R. 114-W, 6 PM

Sec. 20: NW¼SW¼
NE¼SW¼

21: NW¼SW¼
NE¼SW¼
SE¼NW¼

23: NE¼NW¼
NW¼NE¼
NE¼NE¼

24: NW¼NW¼
NE¼NW¼
NW¼NE¼

13: SW¼SE¼
SE¼SE¼

T. 28-N, R. 113-W, 6 PM

Sec. 18: SW¼SW¼
NW¼SW¼
NE¼SW¼
SE¼NE¼

17: SW¼NW¼
NW¼NW¼
NE¼NW¼

Sublette County, Wyoming
T. 27-N, R. 114-W, 6 PM

Sec. 16: SW¼NW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

15: NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

14: NW¼NW¼

11: SE¼NE¼

T. 27-N, R. 113-W, 6 PM

Sec. 6: NW¼SW¼

5: SE¼NW¼
SW¼NE¼
NW¼SE¼
NE¼SE¼

4: NW¼SW¼
SW¼SW¼
SE¼SW¼

9: NE¼NW¼

Federal Lands: 42.5 miles

Permanent: 257.576 acres
Temporary: 128.788 acres
Total: 386.364 acres

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 33: SW¼SW¼
SE¼SW¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 20: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

USFS denotes United States
Department of Agriculture,
Forest Service

PROPOSED POWER LINE

Lincoln County, Wyoming

T. 21-N, R. 116-W, 6 PM

Sec. 34: SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

35: SW¼NW¼
SE¼NW¼

T. 21-N, R. 115-W, 6 PM

Sec. 30: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

28: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

26: NW¼SW¼
NE¼SW¼
SW¼NE¼
SE¼NE¼

T. 21-N, R. 114-W, 6 PM

Sec. 30: SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

28: NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

22: SE¼SW¼
NE¼SW¼
NW¼SE¼
SW¼NE¼
NW¼NE¼
NE¼NE¼

14: NW¼SW¼
SW¼NW¼
NW¼NW¼
NE¼NW¼

2: SW¼SE¼
NW¼SE¼
NE¼SE¼

T. 22-N, R. 114-W, 6 PM

Sec. 35: SE¼SE¼
NE¼SE¼

25: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

24: SE¼SW¼
SW¼SE¼
NW¼SE¼
SE¼NE¼
NW¼NE¼
NE¼NE¼

T. 22-N, R. 113-W, 6 PM

Sec. 19: NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼
SE¼NE¼

20: SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

21: SW¼NW¼
NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

22: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

23: NW¼SW¼
NE¼SW¼
SE¼SW¼

Federal Lands: 15.9 miles
96.364 acres

PROPOSED RAILROAD ROUTE

Lincoln County, Wyoming

T. 21-N, R. 114-W, 6 PM

Sec. 26: NE¼SW¼
SE¼NW¼
SW¼NW¼
NW¼NW¼

22: NE¼SE¼
SE¼NE¼
NE¼NE¼

14: SW¼SW¼
NW¼SW¼
SW¼NW¼
SE¼NW¼
SW¼NE¼
NW¼NE¼

12: SW¼NW¼
NW¼NW¼

T. 21-N, R. 113-W, 6 PM

Sec. 6: NW¼NW¼

T. 22-N, R. 113-W, 6 PM

Sec. 31: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼

30: SE¼SE¼

29: SW¼SW¼
SE¼SW¼
SW¼SE¼
NW¼SE¼
NE¼SE¼

28: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

27: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼
SE¼NE¼

26: SW¼NW¼
SE¼NW¼

Federal Lands: 7.5 miles

Permanent:	45.752 acres
Temporary:	22.876 acres
Total:	68.628 acres

Dry Basin Alternative

PLANT SITE

Sublette County, Wyoming
T. 29-N, R. 112-W, 6 PM

Sec. 33: SE¼

34: SW¼

T. 28-N, R. 112-W, 6 PM

Sec. 6: NE¼

5: NW¼

Federal Lands: 640 acres

PROPOSED SALES PIPELINE

Sublette County, Wyoming

T. 29-N, R. 112-W, 6 PM

Sec. 33: SE¼SW¼
SW¼SW¼

32: SE¼SE¼
SW¼SE¼
SE¼SW¼
SW¼SW¼

31: SE¼SE¼
SW¼SE¼
SE¼SW¼
SW¼SW¼

T. 29-N, R. 113-W, 6 PM

Sec. 36: SE¼SE¼
SW¼SE¼
SE¼SW¼
SW¼SW¼

35: SE¼SE¼
SW¼SE¼
SE¼SW¼
SW¼SW¼

34: SE¼SE¼
SW¼SE¼
SE¼SW¼
SW¼SW¼

33: SE¼SE¼
SW¼SE¼
SE¼SW¼
SW¼SW¼

32: SE¼SE¼
SW¼SE¼
SE¼SW¼

T. 28-N, R. 113-W, 6 PM

Sec. 6: Lot 9
Lot 8
SE¼NE¼
NE¼SE¼
SE¼SE¼

5: SW¼SW¼

8: NW¼NW¼
SW¼NW¼
NW¼SW¼
NE¼SW¼
SE¼SW¼

T. 28-N, R. 113-W, 6 PM

Sec. 17: NE¼NW¼
SE¼NW¼
SW¼NE¼
NW¼SE¼
NE¼SE¼

21: NE¼NW¼

28: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼

33: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼

T. 27-N, R. 113-W, 6 PM

Sec. 4: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼

9: NW¼NE¼
NE¼NE¼
SE¼NE¼
SE¼SE¼

10: SW¼SW¼

15: NW¼NW¼
SW¼NW¼
NW¼SW¼
NE¼SW¼
SE¼SW¼

22: NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
SW¼SE¼

27: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

34: NE¼NE¼
SE¼NE¼
NE¼SE¼
SE¼SE¼

Lincoln County, Wyoming
T. 26-N, R. 113-W, 6 PM

Sec.	3:	NE¼NE¼
		SE¼NE¼
		NE¼SE¼
	2:	NW¼SW¼
		SW¼SW¼
	11:	NW¼NW¼
		NE¼NW¼
		SE¼NW¼
		NE¼SW¼
		SE¼SW¼
	14:	NE¼NW¼
		NE¼NE¼

Federal Lands: 22.5 miles

Permanent:	136.364 acres
Temporary:	68.182 acres
Total:	204.546 acres

PROPOSED GATHERING TRUNK PIPELINE

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 32: SE¼SW¼
SW¼SE¼
SE¼SE¼

33: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

34: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

35: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

36: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

T. 29-N, R. 112-W, 6 PM

Sec. 31: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

32: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

33: SW¼SW¼
SE¼SW¼

Federal Lands: 8 miles

Permanent:	48.485 acres
Temporary:	24.242 acres
Total:	72.727 acres

PROPOSED GATHERING PIPELINES

Sublette County, Wyoming

T. 30-N, R. 115-W, 6 PM

Sec. 36: SW¼NW¼ (USFS)
SE¼NW¼ (USFS)
SW¼NE¼ (USFS)
SE¼NE¼ (USFS)
NW¼NW¼ (USFS)

T. 30-N, R. 114-W, 6 PM

Sec. 31: NW¼NW¼
NE¼NW¼
NW¼NE¼

30: SW¼SE¼
SE¼SE¼

T. 29-N, R. 114-W, 6 PM

Sec. 13: NE¼NW¼
NW¼NE¼
SW¼NE¼
SE¼NE¼
NE¼SE¼

T. 29-N, R. 113-W, 6 PM

Sec. 18: NW¼SW¼
SW¼SW¼

19: NW¼SE¼
NE¼SE¼
SE¼SE¼

20: SW¼SW¼

29: NW¼NW¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
SW¼SE¼

32: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼

T. 28-N, R. 113-W, 6 PM

Sec. 6: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

7: NE¼NE¼
SE¼NE¼

8: SW¼NW¼
NW¼SW¼
SW¼SW¼
SE¼SW¼

T. 28-N, R. 113-W, 6 PM

Sec. 17: NE¼NW¼
SE¼NW¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

28: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼

33: NW¼NW¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼

T. 27-N, R. 113-W, 6 PM

Sec. 4: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼
SE¼SW¼
SW¼SE¼

Sublette County, Wyoming

T. 29-N, R. 114-W, 6 PM

Sec. 14: NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
NW¼NE¼

Sublette County, Wyoming

T. 29-N, R. 114-W, 6 PM

Sec. 10: NW¼NW¼

Sublette County, Wyoming

T. 29-N, R. 114-W, 6 PM

Sec. 17: NE¼SE¼

Sublette County, Wyoming

T. 29-N, R. 114-W, 6 PM

Sec. 8: SW¼NE¼

Sublette County, Wyoming
T. 29-N, R. 115-W, 6 PM

Sec. 12: NE¼SE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 7: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼
SE¼SE¼

8: SW¼SW¼
SE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 26: SW¼SW¼
SE¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 28: NW¼NW¼

29: NE¼NE¼
SE¼NE¼
NE¼SE¼

Sublette County, Wyoming
T. 28-N, R. 115-W, 6 PM

Sec. 3: SW¼SW¼ (USFS)
NW¼SW¼ (USFS)
NE¼SW¼ (USFS)
SE¼NW¼ (USFS)
SW¼NE¼ (USFS)
NW¼NE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 31: SE¼SW¼
SW¼SE¼
NW¼SE¼
SW¼NE¼
SE¼NE¼
NE¼NE¼

32: NW¼NW¼

29: SW¼SW¼
SE¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 115-W, 6 PM

Sec. 35: NW¼NW¼ (USFS)
NE¼NW¼ (USFS)
NW¼NE¼ (USFS)
NE¼NE¼ (USFS)

36: NW¼NW¼ (USFS)

25: SW¼SW¼ (USFS)
SE¼SW¼ (USFS)
SW¼SE¼ (USFS)
NW¼SE¼ (USFS)
NE¼SE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 30: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

29: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

28: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

27: NW¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

23: SW¼SE¼
SE¼SE¼

24: SW¼SW¼
NW¼SW¼
NE¼SW¼
SE¼NW¼
NW¼NE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 19: SW¼SW¼
SE¼SW¼
SW¼SE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 30: NW¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 30: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼

19: SW¼SE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 29: NW¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 32: NW¼NW¼
NE¼NW¼

29: SE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 31: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

32: SW¼SW¼
SE¼SW¼
NE¼SW¼
NW¼SE¼

Sublette County, Wyoming
T. 28-N, R. 114-W, 6 PM

Sec. 1: NW¼NE¼
NE¼NE¼

T. 28-N, R. 113-W, 6 PM

Sec. 6: NW¼NW¼
NE¼NW¼
NW¼NE¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 16: NW¼SE¼
NE¼SW¼
SE¼NW¼
SW¼NW¼
NW¼NW¼

17: NE¼NE¼

8: SE¼SE¼

17: NW¼NE¼
NE¼NW¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 32: SW¼NE¼
SE¼NE¼

33: SW¼NW¼

Sublette County, Wyoming
T. 28-N, R. 115-W, 6 PM

Sec. 24: NW¼SW¼ (USFS)
NE¼SW¼ (USFS)
NW¼SE¼ (USFS)
NE¼SE¼ (USFS)

T. 28-N, R. 114-W, 6 PM

Sec. 20: NW¼SW¼
NE¼SW¼

21: NW¼SW¼
NE¼SW¼
SE¼NW¼

23: NE¼NW¼
NW¼NE¼
NE¼NE¼

24: NW¼NW¼
NE¼NW¼
NW¼NE¼

13: SW¼SE¼
SE¼SE¼

T. 28-N, R. 113-W, 6 PM

Sec. 18: SW¼SW¼
NW¼SW¼
NE¼SW¼
SE¼NE¼

17: SW¼NW¼
NW¼NW¼
NE¼NW¼

Sublette County, Wyoming
T. 27-N, R. 114-W, 6 PM

Sec. 16: SW¼NW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

15: NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

14: NW¼NW¼

11: SE¼NE¼

T. 27-N, R. 113-W, 6 PM

Sec. 6: NW¼SW¼

5: SE¼NW¼
SW¼NE¼
NW¼SE¼
NE¼SE¼

4: NW¼SW¼
SW¼SW¼
SE¼SW¼

9: NE¼NW¼

Federal Lands: 42.5 miles

Permanent: 257.576 acres
Temporary: 128.788 acres
Total: 386.364 acres

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 33: SW¼SW¼
SE¼SW¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 20: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

USFS denotes United States
Department of Agriculture,
Forest Service

PROPOSED POWER LINE

Lincoln County, Wyoming

T. 21-N, R. 116-W, 6 PM

Sec. 21: SW¼NW¼
NW¼NW¼

9: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

4: SE¼SW¼
SW¼SE¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

T. 22-N, R. 116-W, 6 PM

Sec. 33: SW¼SE¼ (BOR)
SE¼SE¼ (BOR)
NE¼SE¼ (BOR)
SE¼NE¼ (BOR)
NE¼NE¼ (BOR)

22: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

15: SE¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

T. 22-N, R. 115-W, 6 PM

Sec. 7: SE¼SW¼
SW¼SE¼
NW¼SE¼

8: NE¼SW¼
NW¼SE¼
NE¼SE¼

9: NW¼SW¼
SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

10: SW¼NW¼
NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

T. 22-N, R. 115-W, 6PM

Sec. 11: NW¼NW¼

2: SW¼SW¼
SE¼SW¼
SW¼SE¼

1: SW¼SW¼
NW¼SW¼
NW¼SE¼
SW¼NE¼
SE¼NE¼
NE¼NE¼

T. 23-N, R. 114-W, 6 PM

Sec. 31: NW¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

32: SW¼NW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼

29: SW¼SE¼
SE¼SE¼
NE¼SE¼
SE¼NE¼
NE¼NE¼

28: NW¼NW¼

21: SW¼SW¼
NW¼SW¼
SW¼NW¼
SE¼NW¼
NE¼NW¼

16: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

9: SW¼SE¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

4: SE¼SE¼
NE¼SE¼
SE¼NE¼
NE¼NE¼

3: NW¼NW¼

T. 24-N, R. 114-W, 6 PM

Sec. 34: SW¼SW¼
NW¼SW¼
SW¼NW¼
NW¼NW¼

27: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

22: SE¼SW¼
NE¼SW¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

15: SW¼SE¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

10: SW¼SE¼
SE¼SE¼
NE¼SE¼
SE¼NE¼
NE¼NE¼

12: SW¼SW¼
NW¼SW¼

T. 25-N, R. 113-W, 6 PM

Sec. 31: SW¼SE¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

30: SW¼SE¼
SE¼SE¼
NE¼SE¼
SE¼NE¼
NE¼NE¼

19: SE¼SE¼
NE¼SE¼
SE¼NE¼

20: SW¼NW¼
NW¼NW¼

17: SW¼SW¼
NW¼SW¼
SW¼NW¼
NW¼NW¼

T. 25-N, R. 113-W, 6 PM

Sec. 8: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NW¼NW¼

5: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

T. 26-N, R. 113-W, 6 PM

Sec. 32: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

29: SE¼SW¼

20: SE¼NW¼
NE¼NW¼

17: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

8: NE¼SW¼
SE¼NW¼
NE¼NW¼

5: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

Sublette County, Wyoming
T. 27-N, R. 113-W, 6 PM

Sec. 32: NE¼SW¼
SE¼NW¼
NE¼NW¼

29: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

20: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

17: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

T. 27-N, R. 113-W, 6 PM

Sec. 8: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

5: SE¼SW¼
NE¼SW¼
SE¼NW¼

T. 28-N, R. 113-W, 6 PM

Sec. 32: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

29: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

20: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

17: SE¼NW¼
NE¼NW¼

8: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

5: SW¼SE¼
SE¼SE¼
NE¼SE¼

4: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

3: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

2: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

1: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

T. 28-N, R. 112-W, 6 PM

Sec. 6: SW¼NW¼ (Lot 13)
SE¼NW¼ (Lot 14)
SW¼NE¼ (Lot 15)
SE¼NE¼ (Lot 16)

5: SW¼NW¼ (Lot 12)
SE¼NW¼ (Lot 11)
SW¼NE¼ (Lot 10)
SE¼NE¼ (Lot 9)

4: SW¼NW¼ (Lot 12)
Lot 5
Lot 4

T. 29-N, R. 112-W, 6 PM

Sec. 34: SW¼SE¼
NW¼SE¼

Federal Lands: 50.5 miles
306.061 acres

BOR denotes United States Dept. of the Interior, Bureau of Reclamation

PROPOSED RAILROAD ROUTE

Sweetwater County, Wyoming

T. 21-N, R. 109-W, 6 PM

Sec. 34 (BOR)
27 (BOR)
28 (BOR)
20 (BOR)
8 (BOR)
6 (BOR)

T. 22-N, R. 109-W, 6 PM

Sec. 30 (BOR)
18: S½ (BOR)
6 (BOR)

T. 23-N, R. 109-W, 6 PM

Sec. 31 (BOR)
30 (BOR)
19 (BOR)
18 (BOR)
17 (BOR)
8 (BOR)
5 (BOR)

T. 24-N, R. 109-W, 6 PM

Sec. 35: S½ (BOR)
N½
29
20
17
16
10
3
4

T. 25-N, R. 109-W, 6 PM

Sec. 34
33
28
27
22
15
14
11
2

T. 26-N, R. 109-W, 6 PM

Sec. 35: SE¼SE¼
NE¼NE¼
36
25
24
13
12
1

Sublette County, Wyoming

T. 27-N, R. 109-W, 6 PM

Sec. 25
24
13
14
11
10
3

T. 28-N, R. 109-W, 6 PM

Sec. 34
27
28
21
20
17
16
8
7
6

T. 28-N, R. 110-W, 6 PM

Sec. 1
2

T. 29-N, R. 110-W, 6 PM

Sec. 25
26
23
22
15
10
9
4

T. 30-N, R. 110-W, 6 PM

Sec. 33
32

T. 30-N, R. 111-W, 6 PM

Sec. 36
35
34: E½

T. 29-N, R. 111-W, 6 PM

Sec. 32 (BOR)
31

T. 29-N, R. 112-W, 6 PM

Sec. 36
35
34

Federal Lands: 73.5 miles
Permanent: 445.455 acres
Temporary: 222.727 acres
Total: 668.182 acres

BOR denotes United States Dept. of the Interior, Bureau of Reclamation

Buckhorn Alternative

PLANT SITE

Sublette County, Wyoming
T. 28-N, R. 110-W, 6 PM

Sec. 17: SE¼
20: NE¼
21: NW¼

Federal Lands: 480 acres

PROPOSED SALES PIPELINE

Sublette County, Wyoming
T. 28-N, R. 110-W, 6 PM

Sec. 17: SE¼NE¼
NE¼SE¼
NW¼SE¼
SW¼SE¼

20: NW¼NE¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
SW¼SW¼

29: NW¼NW¼

30: NE¼NE¼
SE¼NE¼
NE¼SE¼
NW¼SE¼
SW¼SE¼

31: NW¼NE¼
SW¼NE¼
SE¼NW¼
NW¼SW¼
SW¼SW¼

T. 27-N, R. 110-W, 6 PM

Sec. 6: NW¼NW¼
SW¼NW¼
NW¼SW¼

T. 27-N, R. 111-W, 6 PM

Sec. 1: NE¼SE¼
SE¼SE¼

12: NE¼NE¼
NW¼NE¼
SW¼NE¼
NW¼SE¼
NE¼SW¼
SE¼SW¼

13: NE¼NW¼
SE¼NW¼
NE¼SW¼
NW¼SW¼
SW¼SW¼

14: SE¼SE¼

23: NE¼NE¼
NW¼NE¼
SW¼NE¼
NW¼SE¼
NE¼SW¼
SE¼SW¼

T. 27-N, R. 111-W, 6 PM

Sec. 26: NE¼NW¼
SW¼NW¼
SE¼NW¼

27: SE¼NE¼
NE¼SE¼
NW¼SE¼
SW¼SE¼

34: NW¼NE¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
NW¼SW¼

33: NE¼SE¼
SE¼SE¼
SW¼SE¼

Sweetwater County, Wyoming
T. 26-N, R. 111-W, 6 PM

Sec. 4: NE¼NW¼
SE¼NW¼
SW¼NW¼

Lincoln County, Wyoming
T. 26-N, R. 111-W, 6 PM

Sec. 5: SE¼NE¼
NE¼SE¼
NW¼SE¼
SW¼SE¼
SE¼SW¼

8: NE¼NW¼
NW¼NW¼

7: SE¼NE¼
SW¼NE¼
NW¼SE¼
NE¼SW¼
NW¼SW¼

T. 26-N, R. 112-W, 6 PM

Sec. 12: SE¼SE¼
SW¼SE¼

13: NW¼NE¼
NE¼NW¼
NW¼NW¼
SW¼NW¼

14: NE¼NE¼
SW¼NE¼
SE¼NW¼
NE¼SW¼
NW¼SW¼

T. 26-N, R. 112-W, 6 PM

Sec. 15: NE¼SE¼
NW¼SE¼
NE¼SW¼
SE¼SW¼
SW¼SW¼

21: NW¼NE¼
NE¼NW¼
NW¼NW¼

20: NE¼NE¼
NW¼NE¼
NE¼NW¼
SE¼NW¼
SW¼NW¼

Federal Lands: 19.1 miles

Permanent:	115.758 acres
Temporary:	57.879 acres
Total:	173.637 acres

PROPOSED GATHERING TRUNK PIPELINE

Sublette County, Wyoming

T. 29-N, R.113-W, 6 PM

Sec. 32: SE¼SW¼
SW¼SE¼
SE¼SE¼

33: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

34: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

35: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

36: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

T. 29-N, R. 112-W, 6 PM

Sec 31: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

32: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

33: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

34: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

35: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

T. 28-N, R. 112-W, 6 PM

Sec. 4: NE¼NE¼

T. 28-N, R. 112-W, 6 PM

Sec. 3: NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

2: NW¼NW¼
SW¼NW¼
SE¼NW¼
NE¼SW¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

11: NE¼NE¼

12: NW¼NW¼
SW¼NW¼
SE¼NW¼
NE¼SW¼

T. 28-N, R. 111-W, 6 PM

Sec. 18: SW¼NE¼
SE¼NE¼

17: SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

15: NW¼NW¼
NE¼NW¼

10: SE¼SW¼
SW¼SE¼
SE¼SE¼
NE¼SE¼

11: NW¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

12: SW¼NW¼
NW¼NW¼
NE¼NW¼
SW¼NE¼
SE¼NE¼

T. 28-N, R. 110-W, 6 PM

Sec. 7: NW¼NW¼
SW¼NW¼
SE¼NW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

8: SW¼SW¼
SE¼SW¼

17: NE¼NW¼

Federal Lands: 19.3 miles

Permanent: 116.97 acres
Temporary: 58.485 acres
Total: 175.455 acres

PROPOSED GATHERING PIPELINES

Sublette County, Wyoming
T. 30-N, R. 115-W, 6 PM

Sec. 36: SW¼NW¼ (USFS)
SE¼NW¼ (USFS)
SW¼NE¼ (USFS)
SE¼NE¼ (USFS)
NW¼NW¼ (USFS)

T. 30-N, R. 114-W, 6 PM

Sec. 31: NW¼NW¼
NE¼NW¼
NW¼NE¼

30: SW¼SE¼
SE¼SE¼

T. 29-N, R. 114-W, 6 PM

Sec. 13: NE¼NW¼
NW¼NE¼
SW¼NE¼
SE¼NE¼
NE¼SE¼

T. 29-N, R. 113-W, 6 PM

Sec. 18: NW¼SW¼
SW¼SW¼

19: NW¼SE¼
NE¼SE¼
SE¼SE¼

20: SW¼SW¼

29: NW¼NW¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
SW¼SE¼

32: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼

T. 28-N, R. 113-W, 6 PM

Sec. 6: NW¼NE¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

7: NE¼NE¼
SE¼NE¼

8: SW¼NW¼
NW¼SW¼
SW¼SW¼
SE¼SW¼

T. 28-N, R. 113-W, 6 PM

Sec. 17: NE¼NW¼
SE¼NW¼
SW¼NE¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

28: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼

33: NW¼NW¼
NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼

T. 27-N, R. 113-W, 6 PM

Sec. 4: NW¼NW¼
SW¼NW¼
NW¼SW¼
SW¼SW¼
SE¼SW¼
SW¼SE¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 14: NE¼NW¼
SE¼NW¼
NE¼SW¼
SE¼SW¼
NW¼NE¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 10: NW¼NW¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 17: NE¼SE¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 8: SW¼NE¼

Sublette County, Wyoming
T. 29-N, R. 115-W, 6 PM

Sec. 12: NE¼SE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 7: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼
SE¼SE¼

8: SW¼SW¼
SE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 26: SW¼SW¼
SE¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 114-W, 6 PM

Sec. 28: NW¼NW¼

29: NE¼NE¼
SE¼NE¼
NE¼SE¼

Sublette County, Wyoming
T. 28-N, R. 115-W, 6 PM

Sec. 3: SW¼SW¼ (USFS)
NW¼SW¼ (USFS)
NE¼SW¼ (USFS)
SE¼NW¼ (USFS)
SW¼NE¼ (USFS)
NW¼NE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 31: SE¼SW¼
SW¼SE¼
NW¼SE¼
SW¼NE¼
SE¼NE¼
NE¼NE¼

32: NW¼NW¼

29: SW¼SW¼
SE¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 115-W, 6 PM

Sec. 35: NW¼NW¼ (USFS)
NE¼NW¼ (USFS)
NW¼NE¼ (USFS)
NE¼NE¼ (USFS)

36: NW¼NW¼ (USFS)

25: SW¼SW¼ (USFS)
SE¼SW¼ (USFS)
SW¼SE¼ (USFS)
NW¼SE¼ (USFS)
NE¼SE¼ (USFS)

T. 29-N, R. 114-W, 6 PM

Sec. 30: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

29: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

28: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

27: NW¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

23: SW¼SE¼
SE¼SE¼

24: SW¼SW¼
NW¼SW¼
NE¼SW¼
SE¼NW¼
NW¼NE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 19: SW¼SW¼
SE¼SW¼
SW¼SE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 30: NW¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 30: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼

19: SW¼SE¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 29: NW¼SW¼
NE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 32: NW¼NW¼
NE¼NW¼

29: SE¼SW¼

Sublette County, Wyoming
T. 29-N, R. 113-W, 6 PM

Sec. 31: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

32: SW¼SW¼
SE¼SW¼
NE¼SW¼
NW¼SE¼

Sublette County, Wyoming
T. 28-N, R. 114-W, 6 PM

Sec. 1: NW¼NE¼
NE¼NE¼

T. 28-N, R. 113-W, 6 PM

Sec. 6: NW¼NW¼
NE¼NW¼
NW¼NE¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 16: NW¼SE¼
NE¼SW¼
SE¼NW¼
SW¼NW¼
NW¼NW¼

17: NE¼NE¼

8: SE¼SE¼

17: NW¼NE¼
NE¼NW¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 32: SW¼NE¼
SE¼NE¼

33: SW¼NW¼

Sublette County, Wyoming
T. 28-N, R. 115-W, 6 PM

Sec. 24: NW¼SW¼ (USFS)
NE¼SW¼ (USFS)
NW¼SE¼ (USFS)
NE¼SE¼ (USFS)

T. 28-N, R. 114-W, 6 PM

Sec. 20: NW¼SW¼
NE¼SW¼

21: NW¼SW¼
NE¼SW¼
SE¼NW¼

23: NE¼NW¼
NW¼NE¼
NE¼NE¼

24: NW¼NW¼
NE¼NW¼
NW¼NE¼

13: SW¼SE¼
SE¼SE¼

T. 28-N, R. 113-W, 6 PM

Sec. 18: SW¼SW¼
NW¼SW¼
NE¼SW¼
SE¼NE¼

17: SW¼NW¼
NW¼NW¼
NE¼NW¼

Sublette County, Wyoming
T. 27-N, R. 114-W, 6 PM

Sec. 16: SW¼NW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

15: NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

14: NW¼NW¼

11: SE¼NE¼

T. 27-N, R. 113-W, 6 PM

Sec. 6: NW¼SW¼

5: SE¼NW¼
SW¼NE¼
NW¼SE¼
NE¼SE¼

4: NW¼SW¼
SW¼SW¼
SE¼SW¼

9: NE¼NW¼

Federal Lands: 42.5 miles

Permanent: 257.576 acres
Temporary: 128.788 acres
Total: 386.364 acres

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 33: SW¼SW¼
SE¼SW¼

Sublette County, Wyoming
T. 28-N, R. 113-W, 6 PM

Sec. 20: SW¼SW¼
SE¼SW¼
SW¼SE¼
SE¼SE¼

USFS denotes United States
Department of Agriculture,
Forest Service

PROPOSED POWER LINE

Lincoln County, Wyoming

T. 21-N, R. 116-W, 6 PM

Sec. 21: SW¼NW¼
NW¼NW¼

9: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

4: SE¼SW¼
SW¼SE¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

T. 22-N, R. 116-W, 6 PM

Sec. 33: SW¼SE¼ (BOR)
SE¼SE¼ (BOR)
NE¼SE¼ (BOR)
SE¼NE¼ (BOR)
NE¼NE¼ (BOR)

22: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

15: SE¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

T. 22-N, R. 116-W, 6 PM

Sec. 7: SE¼SW¼
SW¼SE¼
NW¼SE¼

8: NE¼SW¼
NW¼SE¼
NE¼SE¼

9: NW¼SW¼
SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

10: SW¼NW¼
NW¼NW¼
NE¼NW¼
NW¼NE¼
NE¼NE¼

T. 22-N, R. 115-W, 6PM

Sec. 11: NW¼NW¼

2: SW¼SW¼
SE¼SW¼
SW¼SE¼

1: SW¼SW¼
NW¼SW¼
NW¼SE¼
SW¼NE¼
SE¼NE¼
NE¼NE¼

T. 23-N, R. 114-W, 6 PM

Sec. 31: NW¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

32: SW¼NW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼

29: SW¼SE¼
SE¼SE¼
NE¼SE¼
SE¼NE¼
NE¼NE¼

28: NW¼NW¼

21: SW¼SW¼
NW¼SW¼
SW¼NW¼
SE¼NW¼
NE¼NW¼

16: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

9: SW¼SE¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

4: SE¼SE¼
NE¼SE¼
SE¼NE¼
NE¼NE¼

3: NW¼NW¼

T. 24-N, R. 114-W, 6 PM

Sec. 34: SW¼SW¼
NW¼SW¼
SW¼NW¼
NW¼NW¼

27: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

22: SE¼SW¼
NE¼SW¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

15: SW¼SE¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

10: SW¼SE¼
SE¼SE¼
NE¼SE¼
SE¼NE¼
NE¼NE¼

12: SW¼SW¼
NW¼SW¼

T. 25-N, R. 113-W, 6 PM

Sec. 31: SW¼SE¼
NW¼SE¼
SW¼NE¼
NW¼NE¼

30: SW¼SE¼
SE¼SE¼
NE¼SE¼
SE¼NE¼
NE¼NE¼

19: SE¼SE¼
NE¼SE¼
SE¼NE¼

20: SW¼NW¼
NW¼NW¼

17: SW¼SW¼
NW¼SW¼
SW¼NW¼
NW¼NW¼

T. 25-N, R. 113-W, 6 PM

Sec. 8: SW¼SW¼
SE¼SW¼
NE¼SW¼
SE¼NW¼
NW¼NW¼

5: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

T. 26-N, R. 113-W, 6 PM

Sec. 32: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

29: SE¼SW¼

20: SE¼NW¼
NE¼NW¼

17: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

8: NE¼SW¼
SE¼NW¼
NE¼NW¼

5: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

Sublette County, Wyoming
T. 27-N, R. 113-W, 6 PM

Sec. 32: NE¼SW¼
SE¼NW¼
NE¼NW¼

29: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

20: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

17: SE¼SW¼
NE¼SW¼
SE¼NW¼
NE¼NW¼

T. 27-N, R. 113-W, 6 PM

Sec. 8: SE¼SW¼
NE¼SW¼
SE¼NW¼
SW¼SW¼
NW¼SW¼
SW¼NW¼
NW¼NW¼

5: SW¼SW¼
NW¼SW¼
SW¼NW¼
NW¼NW¼

T. 28-N, R. 113-W, 6 PM

Sec. 33: SW¼SW¼
NW¼SW¼
NE¼SW¼
SW¼NE¼
SE¼NE¼

34: SW¼NW¼
NW¼NW¼
NE¼NW¼
NW¼NE¼

27: SW¼SE¼
SE¼SE¼

26: SW¼SW¼
SE¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

25: NW¼SW¼
SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

28-N, R. 112-W, 6 PM

Sec. 30: NW¼NW¼

19: SW¼SW¼

20: SW¼NW¼
SE¼NW¼
SW¼NE¼
NW¼NE¼
NE¼NE¼

21: NW¼NW¼
NE¼NW¼

T. 28-N, R. 112-W, 6 PM

Sec. 15: SW¼SW¼
NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

14: NW¼SW¼
NE¼SW¼
NW¼SE¼
NE¼SE¼

13: NW¼SW¼
SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

T. 28-N, R. 111-W, 6 PM

Sec. 18: NW¼SE¼
NE¼SE¼
SE¼NE¼

17: SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

15: SW¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

14: SW¼NW¼
SE¼NW¼
NE¼NW¼
NW¼NE¼

11: SW¼SE¼
SE¼SE¼

12: SW¼SW¼
NW¼SW¼
NE¼SW¼
SE¼NW¼
SW¼NE¼
SE¼NW¼

T. 28-N, R. 110-W, 6 PM

Sec. 7: SW¼NW¼
NW¼NW¼
NE¼NW¼
SE¼NW¼
SW¼NE¼
SE¼NE¼

T. 28-N, R. 110-W, 6 PM

Sec. 8: SW¼NW¼
SE¼NW¼
NE¼SW¼
NE¼SW¼
NW¼SE¼
SW¼SE¼
SE¼SE¼

9: SW¼SW¼

BOR denotes United States Dept. of the Interior, Bureau of Reclamation.

Federal Lands: 59.6 miles
361.212 acres

PROPOSED RAILROAD ROUTE

Sweetwater County, Wyoming

T. 21-N, R. 109-W, 6 PM

Sec. 34 (BOR)
27 (BOR)
28 (BOR)
20 (BOR)
8 (BOR)
6 (BOR)

T. 22-N, R. 109-W, 6 PM

Sec. 30 (BOR)
18: S½ (BOR)
6 (BOR)

T. 23-N, R. 109-W, 6 PM

Sec. 31 (BOR)
30 (BOR)
19 (BOR)
18 (BOR)
17 (BOR)
8 (BOR)
5 (BOR)

T. 24-N, R. 109-W, 6 PM

Sec. 35: S½ (BOR)
N½
29
20
17
16
10
3
4

T. 25-N, R. 109-W, 6 PM

Sec. 34
33
28
27
22
15
14
11
2

T. 26-N, R. 109-W, 6 PM

Sec. 35: SE¼SE¼
NE¼NE¼
36
25
24
13
12
1

Sublette County, Wyoming

T. 27-N, R. 109-W, 6 PM

Sec. 25
24
13
14
11
10
3

T. 28-N, R. 109-W, 6 PM

Sec. 34
27
28
29
30

T. 28-N, R. 110-W, 6 PM

Sec. 25
24
23
22
21

BOR denotes United States Dept. of the Interior, Bureau of Reclamation

Federal Lands: 54.2 miles

Permanent: 328.485 acres
Temporary: 164.242 acres
Total: 492.727 acres

RILEY RIDGE PROJECT
RIGHT-OF-WAY APPLICATION
APPLICANT DATA

SEPTEMBER, 1981

SUBMITTED TO THE
WYOMING STATE OFFICE
U.S. BUREAU OF LAND MANAGEMENT
BY
NORTHWEST PIPELINE CORPORATION

PREFACE

This document is submitted by Northwest Pipeline Corporation to the Wyoming State office of the U. S. Bureau of Land Management. It is submitted as intial applicant data in support of an application to lease lands for pipeline rights-of-way and a gas treatment plant in Lincoln and Sublette Counties, Wyoming. Northwest has prepared this document in its own behalf and that of American Quasar Petroleum Company, Exxon Company USA, and Mobil Oil Corporation, who are also parties to this project.

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Riley Ridge Project Location Map . . . . . Map Pocket

Craven Creek Alternative

Location of Facilities . . . . . Map Pocket

Dry Basin Alternative

Location of Facilities . . . . . Map Pocket

Buckhorn Alternative

Location of Facilities . . . . . Map Pocket

I.A. Introduction

Northwest Pipeline Corporation (Northwest), American Quasar Petroleum Co. (Quasar), Exxon Company, USA (Exxon), and Mobil Oil Corporation (Mobil) propose to develop, produce, treat, and transport natural gas from a new deep gas field in Sublette County, Wyoming. Quasar, Exxon and Mobil have lease holdings in the gas field and will develop the field and produce the gas. In addition to the desired methane, the gas contains hydrogen sulfide (H_2S), carbon dioxide (CO_2), nitrogen (N_2), helium (He), and argon (Ar), all of which must be removed. Northwest proposes to construct and operate a processing plant for treatment of the gas.

The low price of natural gas has heretofore made the development of this known natural gas reserve uneconomical; however, with the gas prices and escalations established in the Natural Gas Policy Act of 1978, the rapid increases in the price of imported gas supplies and substitute sources of natural gas such as coal gas, the development of the Riley Ridge low Btu gas has become economically feasible.

Northwest is the sole supplier of natural gas to a large portion of the Pacific Northwest area of the United States, consisting of Washington, Oregon, and Idaho. Northwest presently is unable to supply all of its gas demands using only domestic natural gas, and relies on Canadian gas exports for approximately 60 percent of its system supply. Canadian export licences contain provisions which will reduce the allowed level of exports over a period ending in 1989, at which time the existing licenses are due to expire by their own terms. Natural gas imported from Canada is presently priced at a level based upon world oil prices. Export prices

under the current Canadian formula will rise over time with world oil prices. For these reasons Northwest is actively engaged in efforts to lessen its dependence on Canadian gas.

As a result, Quasar, Exxon, Mobil, and Northwest are proposing to produce a significant supply of low-Btu natural gas and process it to pipeline quality. The planned production is from previously explored but undeveloped reservoirs below 12,000 feet located in the Riley Ridge Field et.al. in southwest Wyoming. The gas processing will involve carbon dioxide and hydrogen sulfide separation in a standard acid gas removal system coupled with sulfur recovery, and the cryogenic rejection of nitrogen and helium to yield a high Btu gas product. Current evaluations center on a plant capacity of 400 million cubic feet per day (MMCFD) of raw gas inlet. This facility would produce 80 MMCFD of pipeline gas, and 240 MMCFD of carbon dioxide and up to 670 long tons per day (LTPD) of sulfur as by-products. In an operational mode, the project will provide the opportunity to recover up to 7 trillion cubic feet (TCF) of methane gas for the interstate market at a projected unit cost competitive with alternate unconventional and high cost natural gas sources.

Process descriptions contained herein apply to all sites.

B

C

D

E

F

G

H

I

I.B. Purpose and Need

The proposed Riley Ridge Project will produce and process an estimated 32 trillion cubic feet (TCF) of natural gas containing an estimated 7 TCF of recoverable methane (CH_4). This gas is in the Madison Formation (below 12,000 feet) west of Big Piney in Sublette County, Wyoming. The proposed project, consisting of producing wells, gathering systems and processing plant, is needed in order to separate out of this gas the associated carbon dioxide, nitrogen, helium, and hydrogen sulfide and to produce pipeline quality gas which can be sold to various markets. Without the gas treatment plant, the natural gas from these deep formations cannot be used or marketed.

Presently, and in the foreseeable future, this country is and will be dependent upon this type of energy development if it is to maintain a high standard of living. The processed gas would reduce this country's dependency upon an increasingly uncertain foreign energy supply, as well as contribute to the reduction of this nation's balance of payments deficit.

The proposed project provides a means to enhance U.S. energy supplies by converting a large reserve of undeveloped low quality natural gas into a valuable energy product. Further, the result can be accomplished through the application of proven processes now commercially available. In comparison to other substitute sources of natural gas, the upgrading of this low-Btu gas resource warrants development.

Implementation of this proposed project would necessitate the U.S. Geological Survey's, U.S. Forest Service's, and Bureau of Land Management's issuance of various permits and rights-of-way on public lands. These permits and rights-of-way are needed for the development, production, construction, operation, and maintenance of the proposed project.

C D E F G H

I.C. General Description

1. Location

The proposed project is located in southwestern Wyoming, in Lincoln and Sublette Counties. See Location Map in the map pocket. The gas field, where drilling activities, production wells, wellhead facilities, and a pipeline gathering system will be built, is in Sublette County west of the communities of Big Piney and La Barge. The Location Map shows the field as being overlain by Mobil's Tip Top Unit, Exxon's Lake Ridge Unit, Quasar's Riley Ridge acreage and Potential North Riley Ridge acreage, and Belco's Fogarty Creek Unit. The field lies in Ranges 113, 114, and 115 West of Township 28 North, 113, 114, and 115 West of Township 29 North, and 114 and 115 West of Township 30 North.

Craven Creek Alternative

The prime site for the plant is Craven Creek located approximately 40 miles south of the middle of the gas field. See Craven Creek Alternative map in the map pocket. This site is in the vicinity of Section 26, Township 22 North, Range 113 West, Lincoln County. It lies 18 miles east-northeast of Kemmerer and 9 miles northeast of Opal. La Barge is 27 miles to the north. The site is three miles east of the Opal Cutoff, a paved road extending from Opal on U. S. Highway 30, north to U. S. Highway 189 which goes through Kemmerer, La Barge and Big Piney. Road access to the site will be from the Opal Cutoff.

Untreated or sour gas will be collected from producing wells by a small diameter pipeline gathering system. This system will bring all gas to the northern terminus of a 30-inch diameter pipeline central to the gas field. The 30-inch pipeline will follow the route of Northwest's

existing 30-inch and 16-inch pipelines which connect the Big Piney Compressor Station to Northwest's natural gas liquids plant at Opal. This existing system transports gas from the shallow Big Piney field to the plant at Opal where natural gas liquids such as butane, propane, and natural gasoline are separated from the gas. The 30-inch sour gas line will follow the existing lines southward to a point west of the Craven Creek site where it will begin its own right-of-way to the plant. The plant will separate natural gas or methane from the impurities. With compressors, the cleaned or sales gas will be transported from the plant through a 4 1/2 mile long pipeline to the existing 16-inch line where it enters Northwest's existing system.

The plant processes the impurities and recovers elemental sulfur from the hydrogen sulfide. This sulfur will be transported by railroad from the plant to Union Pacific Railroad's mainline at Opal where it will be sent to markets in Florida. New railroad construction will be a 10.1 mile spur from Opal to the plant site.

Carbon dioxide will be extracted and if possible, sold as a product. Production is estimated at 240 MMCFD. This gas is a resource which may be used for enhanced oil recovery in western oil fields.

Electric power will be purchased from Utah Power and Light Co. A transmission line will be built from the Naughton Power Plant south-west of Kemmerer following existing utility corridors where available.

For a plant site located at Craven Creek, elements for the project will consist of:

1. The gas field with its wells, access roads and gathering system.
2. 40 miles of main plant feed pipeline.

3. A processing plant.
4. A four to six mile access road from the Opal Cutoff to the plant site. This route will follow an existing dirt road.
5. A five to six mile pipeline to transport the sales gas to the existing pipeline transmission system.
6. 10.1 miles of railroad
7. A 25 mile electric transmission line from the power plant to the plant site.

Dry Basin Alternative

The Dry Basin site is the first alternate and is closest to the gas field. See Dry Basin Alternative map in the map pocket. It is located in the area of Sections 33 and 34 of Township 29 North, Range 112 West, and Sections 5 and 6 of Township 28 North, Range 112 West in Sublette County. Big Piney is 7 miles to the northeast and La Barge is 13 1/2 miles south. Kemmerer is 61 miles to the south via U. S. Highway 189.

Untreated or sour gas will be collected from wells in the gas field using the same gathering system as described for the Craven Creek site. This system will bring all the gas to a 30-inch diameter pipeline at some point in the field. This pipeline will carry the gas a distance of approximately eight miles to the plant. Using compressors at the plant, sales gas will be sent through a 16-inch pipeline southward, along an existing Northwest pipeline right-of-way to a point in close proximity to the section line between Sections 14 and 23 of T.26 N., R.113 W., southwest of La Barge. Here it will enter Northwest's system in the existing 16-inch pipeline. South of this point the 16-inch line is not being used which makes it available for the sales gas from this project.

This line extends south to Northwest's Opal Plant and main pipeline. North of the point of connection the line is used to carry gas from existing wells to the Big Piney Compressor Station.

The plant will process the impurities and extract elemental sulfur from hydrogen sulfide. The potential for a railroad spur to this site exists for transporting sulfur. This railroad would originate from Stauffer Chemical Co.'s spur for their trona mine and chemical plant northwest of Green River, Wyoming. Northwest's railroad to Dry Basin would be 95 miles in length. It is currently planned to have sulfur either transported by truck to a shipping point on the existing railroad or stored at the plant.

Access to the plant site will be either from U. S. Highway 189, a distance of four miles or from the Calpet Road, a paved road two miles to the north.

Electric power will be purchased from the Utah Power and Light Co.. A transmission line will be built to the plant site from the Naughton Power Plant following the general route shown on the Dry Basin Alternative map.

Dry Basin elements for the project will consist of:

1. The gas field with its wells, access roads and gathering system.
2. Eight miles of main plant feed pipeline.
3. A processing plant.
4. A two to four mile access road. This route will follow an existing dirt road.
5. 25 miles of 16-inch sales gas pipeline from the plant to the existing pipeline.

6. A potential 95 mile railroad.
7. A 65 mile electric transmission line from the power plant to the plant site.

Buckhorn Alternative

The second alternative is the Buckhorn site east of the Green River. See Buckhorn Alternative map in the map pocket. Buckhorn is located in the area of Sections 16, 17, 20, and 21 of Township 28 North, Range 110 West in Sublette County. It lies 13 miles southeast of Big Piney and 17 miles northeast of La Barge. Current access is from U. S. Highway 189 on a dirt road which crosses the Green River at Five Mile Bridge approximately five miles south of Big Piney. Either a new bridge would be required or the existing bridge rebuilt for permanent access to this site.

Untreated or sour gas will be collected from wells in the gas field using the same gathering system as described for the Craven Creek site. This system will bring all the gas to a 30-inch diameter pipeline central to the field. This main pipline will carry the gas approximately 21 miles to the plant. The plant will separate methane from the impurities and process the impurities. Sales gas will be transported via a 16-inch pipeline to a point in close proximity to the section line between Sections 14 and 23 of T.26 N., R.113 W. southwest of La Barge on Northwest's existing 16-inch line. South of this point, the 16-inch line is not being used which makes it available for the sales gas from this project. This line extends south to Northwest's Opal Plant and main pipeline. North of the point of connection, the line is used to carry gas from existing wells to the Big Piney Compressor Station.

The plant will process the impurities and extract elemental sulfur from hydrogen sulfide. As at Dry Basin, there is the potential for a railroad originating from Stauffer's spur to the plant site. This railroad would be 70 miles long. Current plans are to have sulfur either transported by truck to a shipping point on Union Pacific's mainline or stored at the plant.

Electric power will be from Utah Power and Light Co.. An electric transmission line will be built from the Naughton Power Plant to the plant following the general route shown on the Buckhorn Alternative map.

Buckhorn site elements for the project will consist of:

1. The gas field with its wells, access roads and gathering system.
2. Approximately 21 miles of main plant feed pipeline with one crossing of the Green River.
3. A processing plant.
4. 15 miles of access road and one bridge across the Green River. This route will follow an existing dirt road.
5. Approximately 22 miles of 16-inch sales gas pipeline from the plant to the existing pipeline with one crossing of the Green River.
6. A potential 70 mile railroad.
7. A 73 mile electric transmission line from the power plant to the plant site.

2. Siting Criteria

Environmental criteria used to select the prime site and alternatives were:

Climate

Cultural Resources

Emissions

Geology

Land Use

Soils

Topography

Water

Wildlife

Vegetation

Not all criteria have equal weight and several are much the same for all three sites. However, all of these criteria were given some consideration in evaluating the sites although some differences were subtle. The following is a brief discussion of each criterion as it relates to the sites.

Climate

Each of the three sites has basically the same climate. This climate does not present any insurmountable problems for construction and operation. Because of the potential for severe winter weather, winter construction may present problems requiring special expertise.

Cultural Resources

Cultural resources were not significant in comparing one site with another but were considered in selecting the general area from which sites were chosen. Lands north of East Dry Basin have been impacted by historical activity; in particular the Lander Cutoff of the Oregon Trail which is in South Piney Creek. It was decided that a plant site south of

South Piney Creek would be less likely to impact cultural resources. The Craven Creek site does not appear to be affected by known cultural resources.

Air Quality

Air quality at all three sites is considered good. Currently this air quality control region is Class II. Consideration in the selection of these three sites was given to the effects of surrounding higher elevations, for example the Wyoming Range. The Buckhorn and Craven Creek sites are little affected by topographic features. The basin rim and mesas at East Dry Basin may have an effect on compliance with air quality standards.

Geology

Geology is not a significant factor in site selection. There do not appear to be any geologic hazards associated with the sites selected. Earthquakes are a potential hazard but one site would be no more affected than another. Other hazards, for example, landslides, mud flows, soil creep, and subsidence are not present in this area to an extent that would affect site selection.

Land Use

Land use in the area is a combination of grazing, wildlife habitat and industry. Industry is present in the form of oil and gas exploration and production activities. The Craven Creek site is not as impacted by industry as the other two.

Soils

Soils at the sites fall within one of two broad groups: arid soils (Aridsols), or recently formed soils (Entisols). Detailed soil mapping,

which would help in determining specific problem areas, may be required. However, soils of both groups can present erosion and sedimentation problems. All soils will be dry sandy to clayey loams with more soils having sand and/or clay than silt. Organic content is low at all sites. Permeabilities can range from slow to rapid. Run off potential can be from low to high but will probably be moderate to high because of the high clay content.

Topography

Topography in the Big Piney area consists of mesas with entrenched drainages separated by broad, flat valleys and basins. The Craven Creek area is gently rolling plains with the Opal Bench, a 150 foot high escarpment, to the south. Surface slopes are gentle with ample open spaces.

East Dry Basin is roughly 12 miles long, east to west, and two to three miles wide. The basin is broad and relatively flat with steeply rising sides. The north rim rises 200 to 300 feet from the basin floor. The south rim is discontinous, consisting of several closely spaced mesas.

The Buckhorn site is on the east side of the Green River and is situated on a broad, flat, north-south trending drainage divide. Surrounding it are the rolling, disected plains of the Green River basin. The site's elevation of 7200 feet is high for the basin and as such is not enclosed by hills, ridges, or mountains.

Water

Water is available from the subsurface or in the Big Piney area from the Green River. Either source can amply supply the project's needs. The

groundwater may have to be treated because of a high dissolved solids content.

Wildlife

In the Big Piney area, land west of the Green River is considered by the Wyoming Game and Fish Department and U. S. Bureau of Land Management as critical winter habitat for elk, mule deer, and antelope. Land east of the Green River is antelope range and is not critical. The Craven Creek site is antelope habitat with critical winter ranges to the east and north. There have been some sage grouse strutting grounds identified to the north of Craven Creek.

Endangered species identified in the Big Piney area are the black footed ferret, bald eagle, and peregrine falcon. The Bonneville cutthroat trout which inhabits the Green River is being considered for listing as threatened or endangered. White tailed prairie dogs are known in the Craven Creek area which indicates the possible presence of black footed ferret.

Vegetation

Vegetation at all sites is basically the same, consisting primarily of sagebrush with a mixture of short grasses. The main difference between the sites is that of density.

Other Criteria

Safety

The plant will be processing hydrogen sulfide, a poisonous gas, which requires consideration for public safety. Safety factors for plant siting include regional wind direction, proximity to population centers, and local population density. Regional wind directions range primarily

from southwest to west. The Kemmerer-Diamondville-Frontier area has a combined population of approximately 4000 and is 17 miles upwind regionally from Craven Creek. There are no residences in the immediate vicinity of Craven Creek. Opal, with a population of 100, is eight miles southwest and upwind of the site, and appears to be the closest habitation.

Dry Basin is five miles southwest of the community of Big Piney and its surrounding residences. Big Piney and Marbleton have a combined population of approximately 900 and are regionally downwind from this plant site. Human activity in the immediate vicinity primarily involves oil and gas production.

Buckhorn is 12 1/2 miles southeast of Big Piney which places it out of regional wind directions toward the town. There are several residences in the Green River floodplain which lies eight miles west of the site. As at Dry Basin, activity in the immediate vicinity is related to oil and gas production with the addition of grazing.

The region as a whole is sparsely populated. With the exception of Dry Basin the sites chosen are downwind of population centers.

Transportation

Products from the plant will be transported in a gaseous state by pipelines except for sulfur. The preferred method for transporting sulfur is by railroad, the alternatives are truck and pipeline. It is preferrable to move sulfur in a liquid state.

The Craven Creek site will require a 10.1 mile rail line, a 40 mile main plant feed pipeline, and a five to six mile sales gas pipeline. The East Dry Basin site will require an eight mile plant feed pipeline, a rail line of 95 miles, and a sales gas pipeline 25 miles long. The Buckhorn

site will have a plant feed pipeline of 15 miles, a rail line of 70 miles and a sales gas pipeline of 22 miles.

A heated pipeline to transport molten sulfur will have the least environmental damage. However, this method is also the least reliable. Truck transportation to the nearest railhead from the Big Piney area may create additional environmental problems. These include increased road traffic which causes increased fugitive dust on dirt roads, accelerated wear on surfaced public roads, and an increase in wildlife mortality.

3. Prime Plant Site

The site chosen by Northwest for the plant is Craven Creek. This choice resulted from a consideration of technical, environmental, safety, and economic factors.

The ground at the site is relatively flat, sloping gently from the southwest to the northeast and is covered by sagebrush and grasses. Several shallow gullies less than three to four feet in depth cross the area, and low sagebrush covered hummocks are scattered throughout. Soils exposed at the surface consist of very sandy clays and clayey sands. These soils appear to be either residual soils weathered from the underlying bedrock or alluvial soils in areas along washes across the site. Geologic information indicates the area is underlain by bedrock of the Bridger Formation. This bedrock is reported to be mudstone and sandstone containing cherty limestone layers. Based on soils exposed at the site, the bedrock is probably a very sandy claystone or clayey sandstone. Bedrock exposed in the steep bluff of Opal Bench about 1/2 to 1 mile south of the site consists of claystone with sandstone and limestone layers. Some claystone and sandstone is exposed at the surface in the area between the site and the Opal Cutoff.

Big game habitat in this area is antelope and is not considered critical. Moose habitat is found on the flood plain of the Hams Fork River about five miles south of the site. Sage grouse nesting and strutting grounds occur in the area, but not in the vicinity of the plant site. White-tailed prairie dog towns are found throughout this area. Any chosen site will be examined for prairie dogs and the associated black footed ferret, and adjustments made accordingly.

There are no prominent topographic features in the area to adversely affect emission dispersion. Preliminary air quality modeling has indicated that several emission control processes can be used at this site. Ambient air quality appears to be good with particulates the most noticeable pollutant. Known emission sources are Naughton Power Plant, the communities of Diamondville-Kemmerer, and Northwest's Opal Plant. Ambient air quality monitoring and meteorological data gathering will commence at this site in September.

Water will be obtained from groundwater sources. Subsurface water occurs under unconfined and artesian conditions. Unconfined conditions generally exist above a depth of 300 feet, but below that, artesian conditions prevail. Stock wells north of the site to depths between 560 and 616 feet in the Green River Formation are artesian and flow from three to seven gallons per minute (gpm). Water requirements for construction and plant operation require a greater supply. Yields greater than 500 gpm can be obtained from wells greater than 2000 feet penetrating thick sandstone sections of the Wasatch Formation. Water in alluvial deposits and near surface sandstones generally contains less than 500 ppm dissolved solids. Water ranging from 500 to 3000 ppm dissolved solids is generally

available from at least one Wasatch Formation aquifer with others containing a higher mineral content. In general, ground water in this area becomes more mineralized with depth. The main body of the Wasatch Formation is a good source of water. It contains more than one aquifer with wells tapping deeper sandstones flowing in some areas. Aggregate thickness of water bearing sandstone probably ranges from one-third to two-thirds of the total formation thickness of about 4000 feet. Consequently, a large amount of water is in storage, and where deeply buried, is under pressure. More data is needed to properly evaluate the water quality and potential of this formation.

This site is accessible, close to a paved road, a major highway (U.S. 30), and a railroad.

Of the three sites, Craven Creek is the preferred plant location for technical, environmental, safety, and economic reasons.

D E F G H

I.D. Land Status and Acreage Requirements

1. Land Ownership

All three choices for plant sites are on public land administered by the U. S. Bureau of Land Management (BLM) except the Buckhorn site. Section 16 at Buckhorn is owned and administered by the State of Wyoming.

The gas field includes BLM, U. S. Forest Service, and private land. The pipelines in, and extending from, the gas field to the plant will cross BLM, State of Wyoming and private land.

Landowner acreages cannot be determined at this time. This will be accomplished when more exact information is known about locations of well sites and pipelines.

2. Acreage

The amount of land to be leased for the plant site is 640 acres. Not all of this land will be used for processing facilities, but sufficient space is needed for potential expansion and possible elemental sulfur storage. Construction space will require 200 acres. This includes, in addition to facilities being constructed, equipment storage space, material laydown space, and all temporary construction buildings. The finished plant site will occupy 160 acres which will include office buildings, parking space, substation, process and compressor buildings, piping, shops and warehousing. An additional 80 acres will be set aside for sulfur storage to be used in the eventuality of delays in the transportation schedule. The total acreage for construction will be the 200 acres for process facilities plus 80 acres for sulfur storage or a total of 280 acres. The completed site will have 160 acres for the plant site plus the 80 acres of sulfur storage for a total of 240 acres. The

remaining leased acreage of 400 acres will be left unused, providing for possible expansion and a buffer zone around the plant.

Construction of the main plant feed pipeline will disturb an area 40 miles long and 75 feet wide. This is approximately 364 acres or 9.1 acres per pipeline mile. The average area of disturbance for a well site is 400 feet by 400 feet or 3.7 acres. For the known plans of 26 wells drilled, drilling, and to be drilled this amounts to approximately 96 acres. Of the 26 wells, Quasar has 8, Exxon 4, and Mobil 18.

The gathering system as shown on the three location of facilities maps is approximately 70 miles long. This is 636 acres. Access roads to the drill sites will use existing roads as much as possible. Requirements for new access roads have not been determined. A gathering system for all the known well locations has not been designed. Normally, a gathering system is not designed until the wells are tested and production volumes and pressures are known.

A railroad to the Craven Creek site will be 10.1 miles long with an estimated disturbed width of 75 feet. This is a total of 92 acres.

The estimated number of acres to be disturbed, given current information is:

Description	Craven Creek	East Dry Basin	Buckhorn
Drill Sites	96	96	96
Gathering System	636	636	636
Plant Feed Pipeline	365	73	191
Plant Site	280	280	280
Sales Gas Pipeline	55	228	200
Railroad	92	865	637
Total of Estimates	1524	2178	2040

Revegetation after construction will be done as is practical at every disturbed location. At the plant site, 40 acres used for construction will be reclaimed. All acreage disturbed for the gathering system, plant feed pipeline, and sales gas pipeline will be reclaimed. Drill sites will be reclaimed except for 1/4 acre on each which will contain the well head, gas dehydrator equipment and an access road. Land disturbed for railroad construction will be reclaimed except for a 50 foot wide portion containing the roadbed and accompanying access road. The estimated number of acres reclaimed after construction for each alternative plant site is:

Description	Craven Creek	East Dry Basin	Buckhorn
Drill Sites	89	89	89
Gathering System	636	636	636
Plant Feed Pipeline	365	73	191
Plant Site	40	40	40
Sales Gas Pipeline	55	228	200
Railroad	30	285	210
Total of Estimate	1215 Acres	1351 Acres	1366 Acres

The estimated number of acres remaining, not reclaimed, and occupied by facilities, for each alternative plant is:

Description	Craven Creek	East Dry Basin	Buckhorn
Drill Sites	7	7	7
Gathering System	0	0	0
Plant Feed Pipeline	0	0	0
Plant Site	240	240	240
Sales Gas Pipeline	0	0	0
Railroad	62	580	427
Total of Estimate	309 Acres	827 Acres	674 Acres

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Upon abandonment, all aboveground facilities will be removed and salvaged, and the areas they occupied treated and revegetated. Surfaces, including roads no longer needed, will be graded to blend in with the topography. It is the intent of the applicants to vegetate and reclaim all disturbed lands.

I.E. Resource Requirements

1. Construction

The estimated electrical power requirements for construction include 2500 KVA at the plant site and 5700 KVA at the campsite. Construction water requirements, including wash down, dust control, and camp facilities will be less than, and accommodated by, the requirement for operating process water. Water requirements for construction have been estimated at 150 gpm. Additional miscellaneous construction materials, primarily for backfill and foundations, will be specified and sources identified in the development of the construction plan.

2. Operation

The estimated electrical requirement for plant operation is approximately 110 MW. It is anticipated that this power will be provided through a new transmission line to be routed from Utah Power and Light's existing grid system at Naughton Power Plant to the gas treatment plant site. It has been estimated that the plant processing needs will utilize approximately 200 gpm of water, or 323 acre feet per year. Additional fuel requirements of the plant will be determined through detailed design and optimization, and will be accommodated by the product gas.

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I.F. General Construction, Operation, and Reclamation Procedures

1. Construction and Operations

a. Wells

Drilling an oil or gas well begins by staking the location which then must be prepared for the drilling rig. The area prepared is usually in the range of 400 feet by 400 feet. Preparation generally involves earthwork; the land is leveled, dirt pits are built for the sump pits and an access road is constructed so that equipment can be brought to the site. See Figure I.F.1, Rig Layout for 16,000'± Well, which is a generalized layout for a typical deep well.

The drilling rig is then brought in and "rigged up". This refers to raising the derrick, installing wire rope, machinery, pumps, tanks, engines and other equipment necessary to begin drilling. This will take approximately one week but depends upon well depth and expected downhole conditions. The well is then ready to be drilled.

First, a shallow hole is drilled to a typical depth of several hundred feet. A string of surface pipe or casing is inserted into the well and the pipe is cemented in place. The pipe is usually in 30-to-50 foot lengths and is screwed together as it is inserted into the well. The surface pipe must be of sufficient diameter to enable succeeding casing strings to be inserted in previous strings for deeper drilling. Then cement is pumped down inside of the pipe and a plug is used to wipe the cement from the inside of the pipe and push it out into the annular space between the casing and the wellbore until cement returns to the surface. Drilling mud is pumped in on top of the plug and drilling operations are ready to begin.

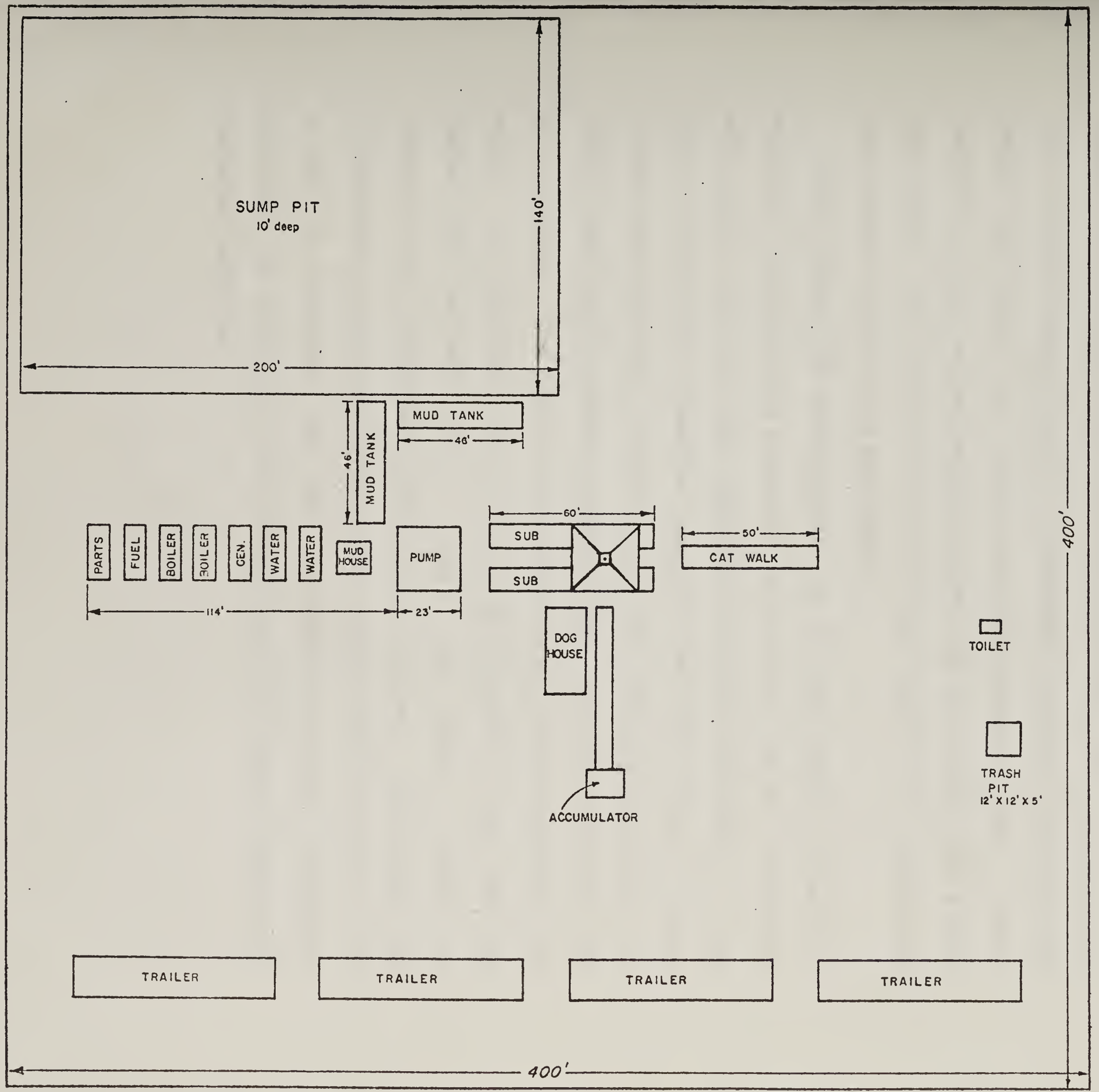

Figure I.F.1

RIG LAYOUT
FOR 16,000±' WELL

SCALE: 1"=50'

NOTE: EQUIPMENT LAYOUT
VARIES W/ CONTRACTOR

After the surface pipe has been set, deeper drilling begins. A bit is run down through the casing to drill through the plug and the float shoe at the bottom of the casing, and routine drilling then begins. The bit at the end of the drill string wears out periodically and the entire string and bit must be pulled from the well so the bit can be replaced. This is called tripping the bit. Intermediate casing may be placed down through the inside of the surface pipe and cemented in place. Several concentric strings may be necessary before the well reaches the planned total depth. Each string of casing is placed inside of the previous one and cemented in place in the same manner.

Upon reaching the desired depth, or TD (total depth), the well is evaluated to determine the presence of oil or gas. The well is surveyed with electric logs and other geological evaluation techniques. If the well is found to be a potential producer, the final string of casing, called production casing, is run into the well and cemented in place in a similar manner to all previous casing strings. This casing will be used as a permanent flow tube for the oil and gas to be brought to the surface. At this point, the drilling rig is usually rigged down and removed from the drill site. A smaller rig, called a workover or completion rig, is then moved in to complete the well. The workover rig is considerably smaller and more portable than the larger drilling rig and is used for lightweight work, such as perforation and well stimulation procedures. On some wells, the large drilling rig is left on location for completion operations.

b. Pipelines

Pipeline construction methods and size of construction equipment required vary with the diameter of the pipe used. The following is a generalized description of those procedures employed in pipeline construction regardless of size.

Construction begins with clearing of the right-of-way to remove surface obstacles. This is usually done with a bulldozer. The right-of-way or portion may then be graded to permit operation of construction vehicles. On Federal lands, the right-of-way is cleared to a width of 50 feet, but it may be wider on private land.

Ditching includes all excavation work required to provide a trench of specified dimensions to cover the pipe. The most common method of ditching is by a specialized ditching machine. Where the ground is hard or otherwise difficult to dig, a backhoe is used. In extremely rocky terrain, it may be necessary to blast rock into manageable sizes.

Pipe is hauled to the site by large trucks and laid end to end next to the ditch. Large diameter pipe is bent at the site using a bending machine. This shapes the pipe to the configuration of the trench.

Pipe ends are cleaned and buffed to remove dirt, rust and grease which would interfere with obtaining a good welded joint. Two crews of welders are generally used to connect the lengths of pipe. The first crew is the line-up and root bead welding crew. Lining-up consists of placing a length of pipe in position to be joined with the rest of the pipe. The second welding crew follows later and adds the filler and cap beads as needed to complete the welds. All welds are x-rayed, and repaired or replaced as necessary. Welding is the most critical of all processes in pipeline construction.

A protective coating using a bituminous substance is applied to the pipe for corrosion control. After the coating is applied, a wrapping material is added and the coating is tested for discontinuities that would permit moisture to reach the pipe.

The pipe is carefully lowered into the ditch to prevent damage to the coating. A fine grained or sandy backfill material is used to cover the pipe which is also to prevent the coating from being damaged. The rest of the ditch is filled with coarse material excavated during ditching. A bulldozer is commonly used for backfill operations.

A hydrostatic test is made of the pipeline after the ditch has been filled to detect leaks and expose weaknesses in the pipe or welds prior to its being placed into service. This is done by filling the pipe with water and holding it at a specified pressure for a given period of time. A decrease in pressure will indicate a leak, which must be found and repaired.

Disposal of hydrostatic test water in a manner that reduces or eliminates environmental harm is desired. Often the water acquires iron oxides of sufficient quantity from the pipe as to preclude its disposal into water courses. Because of this and the potential for an increase in stream turbidity and suspended solids, water from testing may be disposed of in settling ponds.

Upon completion of testing, the right-of-way is cleaned, contoured, and revegetated. Where necessary, water bars are built and rock riprap is emplaced to reduce erosion.

c. Processing Plant

Construction and operating plans for the plant will be developed through the course of the ongoing engineering process design study. These items will represent the final efforts of the study and are scheduled for completion in January, 1982. Figure I.F.2 shows a preliminary system layout for the gas treatment facility being proposed. This is a generalized plot plan which will develop in detail as the engineering design progresses.

d. Well Head Facilities

Each well head will have free water separation and dehydration equipment. Operation of the well head facilities and pipelines will consist of periodic checks on flow meters, dehydrators, valves and preventive maintenance on all equipment.

2. Reclamation, Mitigation and Control Technology

a. Terrestrial

All disturbed areas will be restored after completion of pipeline trench backfilling operations or plant and facility construction, according to stipulations issued by the governing agency or landowner. Reclamation will consist of four phases: waste removal, structure repair, land restoration, and revegetation.

Waste, which includes, but is not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, and discarded equipment will be removed to a sanitary landfill or otherwise disposed of according to permits or as requested by the governing agency or landowner. Brush or slash will be burned on site or disposed of in accordance with the terms of any applicable permit or as requested by the governing agency or landowner.

NORTHWEST PIPELINE CORPORATION

GAS TREATMENT FACILITY
SYSTEM LAYOUT
NO SCALE

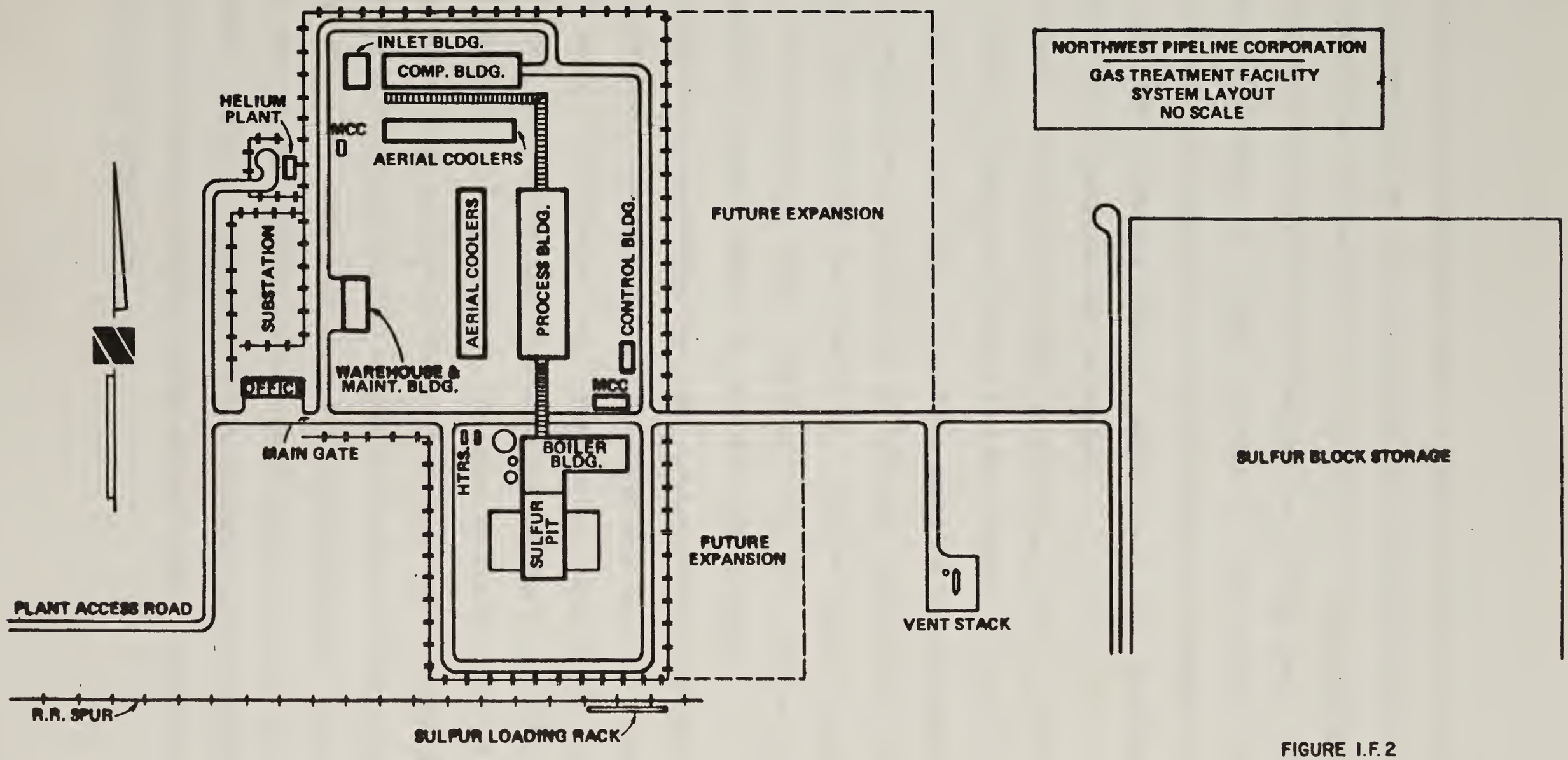

FIGURE I.F.2

Structures, such as fences and gates, irrigation ditches, and roads, damaged during construction, will be restored to a condition which is as good as or better than existed prior to construction. As an alternative, payment may be made for restoration of damages on private land. Rocks, three inches in diameter or larger, brought to the surface during construction across cultivated lands will be removed and disposed of in accordance with the landowners wishes. Where fences are encountered, temporary gates will be installed when requested.

Land surfaces disturbed by pipeline construction activities will be restored as closely as possible to their original contours. Topsoil will be removed and stored separately from other spoil to be replaced upon completion of backfilling. A berm will be left over the filled-in ditch to compensate for settling and compaction. Earthen erosion control structures will be built on slopes requiring protection. Stream banks will be restored to original contours or to a more gentle slope.

At the plant site and construction camp, topsoil will be removed and stockpiled separately. During construction, structures will be designed and built to control precipitation runoff and erosion. Upon completion of construction, the construction camp and buildings at the plant site not needed for operation will be removed. As much re-usable material as possible from these sites will be salvaged. That which cannot be salvaged will be disposed of in accordance with appropriate State and Federal solid waste regulations. The camp site area will be reshaped as close as possible to its original contours with topsoil spread on top of the disturbed areas. The plant site area will be reshaped and/or landscaped in accordance with original contours and operational needs. Topsoil will be spread over the disturbed areas.

Disturbed lands will be revegetated with a seed mix of species recommended by the governing agency or landowner. Owners of cultivated land will be paid the cost of their crop seed and any fertilizer necessary to restore such land to its original productivity. Portions of the plant site will be landscaped with non native species such as lawn grass and ornamental shrubs and trees. Other portions of the plant site will be paved or covered with gravel to prevent growth of vegetation.

Revegetation success will be monitored with seeding repeated as necessary in areas where prior efforts were not satisfactory. During construction and thereafter, access to pipeline rights-of-way will be blocked as necessary and as agreed upon with the governing agency or landowner to prevent unauthorized use and to promote restoration and rehabilitation.

b. Air

The proposed gas treatment facility will be a source of air contaminants during the construction and operational phases of the project. Fugitive dust will be most prevalent during construction. However, application of water to unpaved roads and asphalt paving for the gas treatment facility access will greatly reduce the amount of particulates introduced into the air. Emissions which will occur from operation of the proposed facility as well as control strategies are discussed in section I.K.2.

Reclamation of disturbed lands (i.e. reseeding) will mitigate windborne particulates and reduce the potential for particulates, resulting from the project, to exceed the air quality standards set by the Wyoming Department of Environmental Quality.

c. Water

Construction of the gathering system pipeline facilities will require the clearing of new access roads. Slope stabilization, grading, and contouring will be used to minimize erosion from the exposed areas. Where these facilities lie in close proximity to a stream, a dike or berm will be installed on the downhill side to prevent excessive siltation of the stream.

A Nationwide Permit from the U.S. Army Corps of Engineers will be obtained for all streams that are crossed during pipeline construction. Several small streams will be crossed and possibly the Green River. Stream siltation can be minimized by the use of sediment barriers placed downstream of construction. Barriers may consist of a boom-type arrangement of burlap sacks partially filled with a mixture of straw and clean gravel.

Depending on the composition of the stream bed, depth of water and the proximity of access roads to the stream, three types of crossing techniques are expected. 1) If the stream has a solid gravel base, the trench can be dug from the banks and the spoil materials sidecast downstream of the trench. Vehicles may drive across the stream with little impact. 2) If the stream has a muddy bottom, or the water is too deep for vehicles to drive accross and no access road around the stream is close, flume pipes will be installed in the creek bottom and a roadway will be built on top of the flume for vehicle passage. The spoil material will be placed above the high water mark on the banks . 3) If the stream has a muddy bottom or the water is too deep for vehicles to cross and an access road around the stream is nearby, the trench will be dug from the banks and the spoil material will be placed above the high water mark on the banks.

The Green River has a sand and gravel base, therefore placement of the spoil material on the downstream side of the trench should have little impact on the river. The trench will be dug from the banks to the extent possible, but due to the width of the river, it may be necessary for the backhoe to move into the channel to complete the trench. Tracked vehicles may be permitted to cross in the river with rubber tired vehicles using the bridge. This is to lessen damage by tracked vehicles to roads. The contractor may have the option of bringing in his own bridge for vehicle crossings.

Water will be used to hydrostatically test the gathering system facilities and will be secured through agreements with local landowners and the State Engineer's Office. Disposal of the test water will depend on the proximity of the discharge to a flowing stream, the time of year (winter testing may require that chemical additives be placed in the line to prevent freezing), and subsequent uses of the water. No hydrostatic test water will be discharged that has the potential of reaching a watercourse. An energy-dissipating device will be used to minimize erosion during any discharge.

The plant site will require clearing and grading of the area in preparation for construction. The grading will be done in such a manner that no channelized flow will be allowed to leave the plant site and enter a flowing stream. Considerably more area will be required for plant construction than for plant operation. Upon completion of construction, these areas will be sloped and revegetated in a manner that will minimize erosion.

There will be no waste water discharges during operation of the plant. All water will either be evaporated in holding ponds, recycled, or disposed of by deep well injection. A spill prevention control and countermeasure plan will be designed to cover operation of the plant facilities.

A construction camp near the plant site will be required. The camp will house gathering system personnel and construction workers for the plant. Construction of the camp will require clearing of vegetation and grading of the site. The camp will be constructed in a manner that will minimize off-site channelization and sheet erosion. No runoff or sewage will be permitted from the camp during construction or use of the camp. All facilities will be removed upon completion of construction and the sites revegetated.

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I.G. Time Frame and Permits

1. Time Frame

Development of the gas field will be accomplished by various production companies. The following programs are tentative and subject to change dependent upon results of on-going development and evaluation.

The following is a summary of Mobil's present development plan for the Paleozoic gas reserves being sought for this project.

Description	Status
Tip Top 14-13G	Completed in 1979
Tip Top 54-2G	Completed in 1980
Tip Top 27-6G	Drilled 1981, awaiting completion
Tip Top 54-19G	Currently drilling
One Well) Sections 16, 17, 21, &	Planned 1982
Two Wells) 32-28N.-113W.	Planned 1983
Two Wells) Sections 29 & 30-	Planned 1984
One Well) 29N.-113W.	Planned 1985

The order of drilling has not been determined at this time. Development subsequent to completion of the above outlined program will proceed at a rate sufficient to maintain the required deliverability.

Quasar has completed one Paleozoic well, and is currently drilling another. The U. S. Geological Survey has permitted four additional drilling locations in the proposed Riley Ridge area within the very near future. Upon approval of a two-rig program Quasar plans to develop its acreage until one well per section is drilled. Including the discovery well, the current proposed drilling order for delineation wells is as follows:

Description	Status
SW1/4 8, T.29N.-R.114W. (discovery)	Completed 1979

SW1/4 10, T.29N.-R.114W.	Currently Drilling
SW1/4 12, T.29N.-R.115W.	APD approved
SW1/4 17, T.29N.-R.114W.	APD approved
SW1/4 14, T.29N.-R.114W.	APD approved
SW1/4 26, T.29N.-R.114W.	South Stepout
SW1/4 28, T.29N.-R.114W.	South Stepout
SW1/4 ~~30~~ 33, T.30N.-R.114W.	North Stepout approved

Exxon has completed one well which it considers to be a geologic success, is drilling two additional wildcats and has applied for a fourth well. Exxon's plans are to continue working in the area in order to determine the potential of their lease holdings. They plan to continue drilling until they are satisfied the lease has been properly evaluated. Whether or not additional wells are drilled depends upon the results from these wells.

The preliminary project schedule indicates completion in mid-1985. See Table I.G.1, Project Schedule.

2. Permits

Table I.G.2 is a list of permits and approvals which will have to be obtained prior to start of construction of the treatment plant and associated facilities. The list identifies the appropriate regulatory authority and indicates by asterisk those which have been contacted. This list is not to be considered all inclusive at this time and some of the permits on the list may not be needed.

Production companies will file their applications for Permit to Drill, Completion Programs, and Surface Use Plans, with the U. S. Geological Survey. These will be filed as development programs progress.

PROJECT SCHEDULE

Table I.G.1

PROJECT COMPONENT	1981	1982	1983	1984	1985	1986	
	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
Phase I Engineering Study							
Engineering Analysis							
Engineering Design							
Procurement							
Construction							
Air Quality Monitoring							
Air Quality Analysis							
Socio-Economic & Siting Permit							
EIS							
Hydrology Evaluation							
Water Disposal Evaluation							
Site Analysis & Selection							
FERC Certificate							

Table I.G.2

Riley Ridge Project
Permits and Approvals

State of Wyoming Permits

Permit/Approval	Permitting Authority	Agencies Contacted*
1. Industrial Siting Permit	Industrial Siting Council	*
2. Certificate of Public Convenience and Necessity	Public Service Commission	
3. Air Quality Construction Permit (PSD)	Air Quality Div., DEQ	*
4. Approval for Const. or Enlargement of Reservoir	State Engineer	*
5. Approval of Change of Use and Point of Diversion - Inundated Rights	State Engineer	*
6. Review of Water Supply and Water Yield Analysis	State Engineer	*
7. Ground Water Appropriation	State Engineer	*
8. Approval of Water Pipeline	State Engineer	*
9. Reservoir Permit - Raw Water Holding Pond	State Engineer	*
10. Reservoir Permit - Wastewater Evaporation Pond	State Engineer	*
11. Reservoir Permit - Plant Site Runoff Retention Pond	State Engineer	*
12. Temporary Water Rights for Construction	State Engineer	*
13. NPDES Permit for Plant Site Runoff	Water Quality Div., DEQ	*
14. NPDES Permit for Const. Runoff at Railroad Spur	Water Quality Div., DEQ	*
15. Approval of Wastewater Evaporation Pond	Water Quality Div., DEQ	*

Table I.G.2

Riley Ridge Project
Permits and Approvals

State of Wyoming Permits

Permit/Approval	Permitting Authority	Agencies Contacted*
16. Approval of Plant Site Runoff Retention Pond	Water Quality Div., DEQ	*
17. Approval of Sewage Treatment Plant	Water Quality Div., DEQ	*
18. Approval of Potable Water Supply for Plant Personnel	Water Quality Div., DEQ	*
19. Approval of Spill Prevention Control and Countermeasure Plan	Water Quality Div., DEQ	*
20. Certificate of Public Convenience and Necessity - Railroad Spur	Public Service Commission	
21. Solid Waste Disposal Permit	Solid Waste Div., DEQ	*
22. Utility Crossing Permits for Pipelines	Highway Dept.	
23. Easements for Pipelines on State Lands	State Land Board	
24. Air Quality Operating Permit	Air Quality Div., DEQ	*
25. Wildlife Considerations	Wyoming Game & Fish Dept.	*
26. Wyoming Executive Approval	Wyoming Executive Dept.	
27. Agricultural Planning & Development Approval	Wyoming Dept. of Agriculture	
28. Economic Planning & Development Approval	Wyoming Dept. of Economic Planning	
29. Recreation Planning Approval	Wyoming Recreation Commission	
30. Water Development Approval	Water Development Commission	

Riley Ridge Project
Permits and Approvals

County Permits

Permit/Approval	Permitting Authority	Agencies Contacted*
1. Building Permit	County Commission	*
2. Zoning Permit	County Planning/Zoning Comm.	

Federal Permits

Permit/Approval	Permitting Authority	Agencies Contacted*
1. Certificate of Public Convenience and Necessity	FERC	*
2. EIS	Bureau of Land Management	*
3. Cultural Resource Survey	Bureau of Land Management	*
4. Threatened and Endangered Species Survey	Bureau of Land Management & Fish & Widlife Service	*
5. Stream Crossing Permits	Army Corps of Engineers	*
6. Hazardous Waste Permits	Environ. Protect. Agency	
7. PSD	Environ. Protect. Agency (State of Wyoming has primacy for this program)	*
8. NPDES	Environ. Protect. Agency (State of Wyoming has primacy for this permit)	

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I.H. Work Force Requirements

1. Construction

To build the gathering system and main plant feed pipeline, Northwest estimates a construction work force of approximately 300 will be needed. Added to this are Northwest's construction inspectors, on-site contract administrators, and right-of-way agents for an additional 25 people.

For each drill rig in the gas field there will be a work force of 20, five workers per tower (shift) plus five supervisory people. Mobil and Quasar currently have one drill rig each and Exxon has two, totalling 80 people presently working in the Riley Ridge Field. Many of these workers come from the local work force which has oil and gas field experience.

It has been estimated that a peak workforce of 1000 will be required to construct the plant, railroad, and electric transmission line. More detail and refined numbers will be available upon completion of plant design.

2. Operation

The current estimate of permanent operating personnel required for the proposed gas treatment facility is approximately 80 to 100 individuals. This staff will accommodate the normal anticipated operation, maintenance, and administrative requirements for the 24 hour, 7 day production schedule. This includes an estimated 10 workers which will be needed to operate and service the wellhead facilities and gathering system. These will be added to Northwest's permanent staff stationed in Big Piney.

The apparent desires of local residents and officials indicate a preference towards housing new company employees by integrating them into existing communities. This preference has been evidenced in the communities surrounding this proposed development as well as other similar western communities.

This integration will be implemented after detailed evaluation and a plan is developed and will be based on public and local government input coupled with input from consultants in the field of socio-economics. This evaluation and plan will address a wide range of concerns including the availability and potential for expansion of housing, utilities, schools, medical care, law enforcement, fire protection, roads, recreational facilities, and other commmunity and human services.

Based on the results of professional evaluations, Northwest will take the steps necessary to insure that housing will be made available to new company employees.

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I.I. Project Components

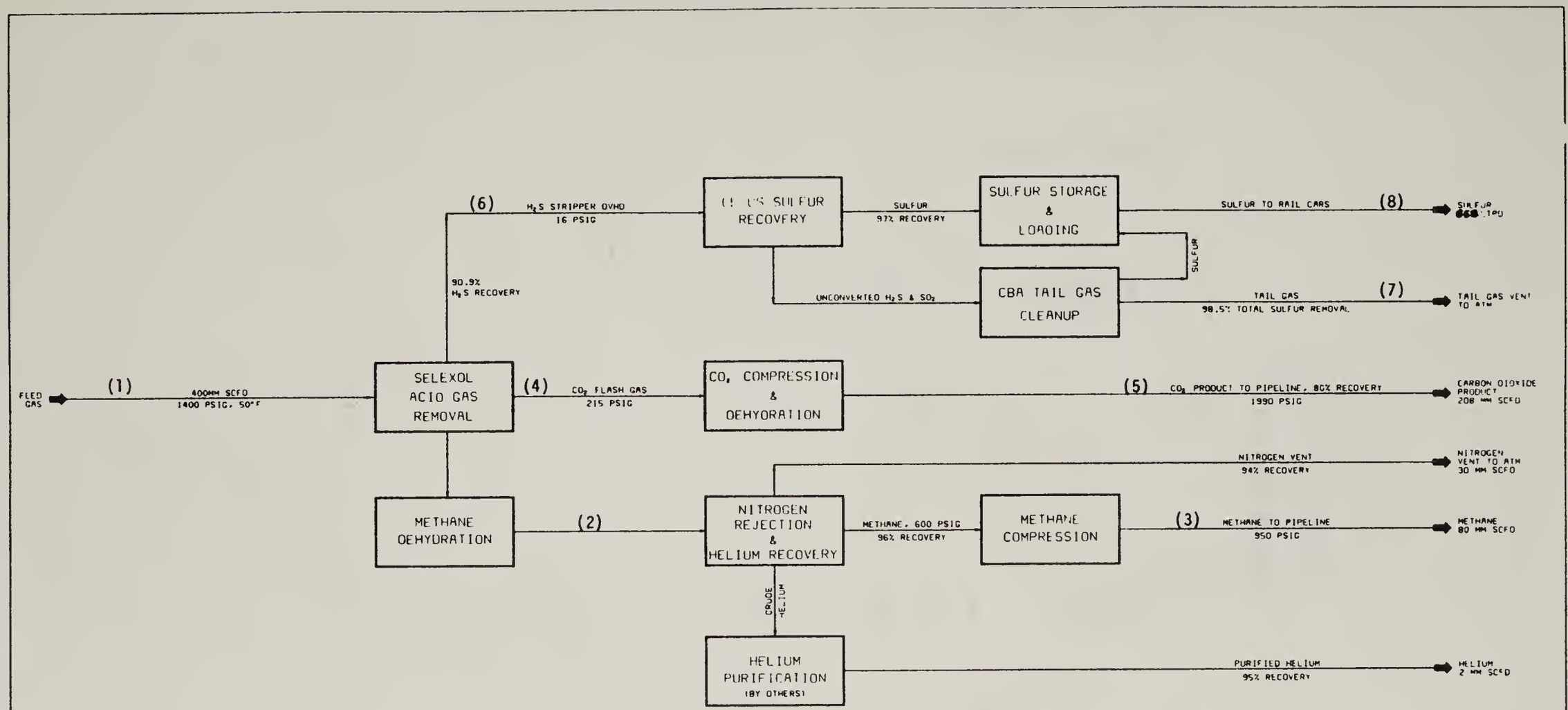
1. Major processing facilities

a. General Process Description

The design of the proposed gas treatment facility will utilize commercially proven technology. The primary objective of the process facilities is to produce pipeline quality natural gas, that is, a sulfur-free gas having a heating value of at least 985 Btu per cubic foot. The gas processing will involve CO_2 and H_2S separation in a standard acid gas removal system coupled with sulfur recovery, and cryogenic rejection of nitrogen and helium.

The processes proposed for use in the plant and described below represent typical and proven methods of accomplishing the desired separations. During the course of detailed process design, more effective or economical ways to accomplish the process objectives may be adopted. Figure I.I.1 is a generalized process block flow diagram of the plant and Table I.I.1 is a material balance corresponding to the numbered streams in the flow diagram. Figure I.I.2 is an aerial photograph of a gas processing plant of similar size located in Canada.

The raw feed coming from the gathering system will first enter the acid gas removal section. The Selexol process has been tentatively selected for use due to its ability to separate the carbon dioxide and hydrogen sulfide into separate streams. Selexol is a proprietary process of Allied Chemical Co., which utilizes a solvent to first absorb the acid gases out of the raw gas stream, and then, through a series of selective stripping and absorbing steps, separate the carbon dioxide and hydrogen sulfide.



REVISIONS	REFERENCE DRAWINGS	PRINT RECORD	ENG. RECORD	DRAWING STATUS

PROCESS FLOW DIAGRAM
OVERALL PLANT BLOCK FLOW DIAGRAM
LA BARGE LOW BTU GAS PROJECT
NORTHWEST PIPELINE CORPORATION
STEARNS-ROGER
SK-00-06-103

Figure I.1.1

Figure I.I.2

The Selexol Process is used to separate the feed gas at feed conditions in to the following fractions:

a. Methane plus inerts containing 50 ppm of carbon dioxide.

b. Carbon dioxide at 200 psig containing minimal methane and 99 ppm maximum of hydrogen sulfide.

c. Hydrogen sulfide Claus Plant feed with about 33% hydrogen sulfide, and the remainder primarily carbon dioxide.

This process is especially applicable for bulk removal of carbon dioxide and hydrogen sulfide. The solubility of hydrogen sulfide in the solvent is about 7 to 10 times greater than the solubility of carbon dioxide, permitting preferential absorbtion of hydrogen sulfide. Its particular advantages are low solvent circulation rate, low plant cost, low utility requirements, effective removal of mercaptans, carbonyl sulfide (COS) and carbon disulfide (CS_2) without solvent degradation, low corrosion and low vaporization losses of solvent.

The hydrogen sulfide, will be converted to sulfur in a Claus Plant. Years of experience with the Claus Process make the technology a known quantity, however, selection of the appropriate tail gas clean-up unit will require further study. It will be necessary to treat the effluent gases from the Claus Plant with a tail gas unit to control the release of sulfur compounds to the atmosphere. Currently, the utilization of Amoco's Cold Bed Absorption (CBA) process for the tail gas unit is contemplated at the Craven Creek site. However, other commercially available tail gas clean-up processes will be evaluated. Criteria for selection will be compliance with environmental constraints, plant reliability, and capital and operating costs.

The treated gas, free of acid gases, will have a heating value of approximately 730 Btu per standard cubic foot. Nitrogen rejection will be required to yield a product stream, having a heating value of approximately 985 Btu per standard cubic foot.

Nitrogen rejection is accomplished by cryogenic separation. This separation requires two opertions:

a. Cooling until gas liquefaction occurs.

b. Selective distillation of the liquid into the appropriate components.

Liquid nitrogen is colorless, odorless, and has a boiling point of -320°F. Liquid methane is also colorless and odorless, but boils at -250°F. at atmospheric pressure. The difference in boiling points is the basis for the separation distillation. The technology required to design such a cryogenic system is well established. The basic process consists of an expansion type refrigeration system and a heat exchange system to economically utilize the energy used in the refrigeration and cryogenic distillation system. Typically, the heat exchange and distillation equipment are grouped in a well insulated enclosure. The details of design and construction of the equipment in the enclosure are considered to be proprietary. No immediate problems are anticipated.

b. Abandonment of Processing Facilities

The proposed action is projected to have a 20-year minimum life expectancy; however, the supply of gas from the associated gas field units is the major factor affecting the life determination. Should additional gas supplies become available, the life of the facilities and/or the capacity could be increased.

At the end of the facilities useful life, Northwest would obtain authorization from jurisdictional agencies, where appropriate, to abandon said facilities. Northwest would purge all field pipelines and plant facilities of natural gas or other contaminants. Pipelines would be sealed and abandoned in place. All aboveground facilities, foundations, and salvageable material would be removed. Unsalvageable materials would be disposed of at authorized disposal sites. The plant site will be regraded and revegetated as necessary. The Federal, state, or other land managing or jurisdictional agencies may place reasonable conditions upon abandonment as needed. In addition, abandoned rights-of-way would revert to the private landowner's or agency's control.

2. Associated Processing Facilities

Those facilities associated with the plant will be:

1. Railroad
2. Electric Transmission Line

A railroad will be built from the Union Pacific line to Craven Creek site, a distance of 10.1 miles. Engineering and construction will be less than one year; however, delivery of rail and ties is up to one year which could extend the overall time frame. The route shown on the map assumes a 1% maximum grade and a 3° maximum curvature. A completed line will consist of a 32 foot wide road bed plus 10 feet for an access vehicle roadway. Ballast will be shipped from the Cheyenne area.

The line will be owned by Northwest and operated by Union Pacific. Normal maintenance will be performed by Union Pacific which will include weekly inspections plus minor rail and roadbed repair. An engine will originate out of Kemmerer and be available for service five days a week.

Approximately 207 rail cars will be required for sulfur transportation to Florida based on a 30 day turnaround.

Electric power requirements for the plant will be for an estimated total horsepower requirement of 122,000. Electrical power demand for this is estimated at 110 MW with estimated transmission voltage at 138 KV. Power will originate at Utah Power and Light Co's Naughton Power Plant southwest of Kemmerer and transmission facilities will be owned by Northwest.

Abandonment procedures are the same as those described in section I.I.1, Process Facilities.

3. Wells and Gathering System

Current plans, include 26 wells and a gathering system as described in I.G.1 and shown on the location maps. Development and production of the field will involve additional wells with a corresponding expansion of the gathering system. Details regarding development and expansion will be submitted as they become available.

Due to the corrosive nature of the gas, free water separation and dehydration facilities will be required at each well. These facilities will include a free water separator, cooling equipment, dehydrator, hydrate inhibition equipment, storage and dehydrator loading equipment, and a brine storage pit.

Free water separation equipment will consist of a vertical vessel approximately 10 feet high with an inside diameter of 30 inches. The process consists of a gas/water separation with gas going to the dehydrator. Water disposal methods are being studied and will be in compliance with all State and Federal regulations.

Gas entering the dehydrator must be cooled for optimum dehydrator operation. This will be done using a gas to gas exchanger followed by a reduction in pressure. Input gas will exchange heat with gas which has gone through the dehydrator. This will take place in a double pipe, longitudinally finned which is 5 feet high by 3 feet wide by 50 feet long.

To prevent hydrates from forming in the dehydrator, an inhibition system will be used. An inhibitor will be injected prior to pressure reduction in the gas cooling system. Diethylene glycol will be the inhibitor and will be injected using a high pressure pump.

Design approach to the dehydration process is to eliminate corrosive conditions by removing enough water so that dewpoints in the gas are 10-20°F below the minimum temperature expected in the gathering system. A process using calcium chloride has been selected to accomplish this purpose. This process is simple to operate, requires no regeneration, and can reach satisfactory exit gas dewpoints. Calcium chloride absorbs water, turning it into a brine which is continuously ejected. Dehydrators will be designed with a two week operating capacity. In order to insure system reliability, two dehydrators may be installed at each well site. As one unit depletes its calcium chloride supply, the second unit would switch on stream. An operator would have two weeks to recharge the first unit.

It is anticipated that brine will be produced at a rate of 10 gallons per hour. It will contain water, calcium chloride, and carbonic acid. All brine produced at a well site will be collected in a lined pit which will have a 50 day storage capacity. Disposal will be in accordance with all State and Federal regulations.

Electric power will be required at each well site. This will be used to operate hydrate inhibitor injection pumps, controls, instrumentation, and lighting for the calcium chloride storage and loading facilities.

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I.J. System Operation

A system operation plan will be developed and presented after process selections are made and preliminary engineering analysis is done. This work is scheduled to be completed in February, 1982. It will include energy balances, input-output analyses, emission rates, waste water volume and composition.

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I.K. Design, Construction, and Operation Features for Environmental Impact

1. Terrestrial

Guidelines for the design, construction and operation of pipelines are contained in the Code of Federal Regulations at 18 CFR 2.69. These regulations are adminstered by the Federal Energy Regulatory Commission.

In locating pipelines and facilities, consideration will be given to the utilization of existing rights-of-way. Every effort will be made to avoid national historic places and natural landmarks as designated by the Secretary of the Interior and officially designated parks, scenic, wildlife and recreational lands. Where practical, rights-of-way will avoid heavily timbered areas and steep slopes. In wooded areas, long views of cleared rights-of-way, visible from highways and other areas of public view will be avoided where practical. Every attempt will be made not to cross hills and other high points at their crests.

During construction, the method of clearing rights-of-way and facility sites will take into account soil stability, protection of natural vegetation, and the protection of adjacent resources. Right-of-way and site clearings will be kept to the minimum necessary acreage. Vegetation cleared from rights-of-way and facility sites in areas of public view will be disposed of without undue delay. Adjacent vegetation will be protected during construction. All measures will be taken for the prevention and control of brush fires and other hazards.

All efforts will be made to avoid the removal of top soil on other than rights-of-way. Should this occur, the surface will be restored and stabilized without undue delay. Soil which has been excavated during

construction and not used will be evenly filled back onto the cleared areas or removed from the site.

Where rights-of-way cross streams or other bodies of water, the banks will be stabilized to prevent erosion. Construction will be conducted in such a manner as to keep to a minimum damage to stream banks, recreation areas and fish and wildlife habitats. Replacement of earth adjacent to water crossings will be at slopes equal to or less than the normal angle of repose for the soil type involved. Seeding, sandbagging, or other methods of soil stabilization will be used. Blasting will not be done within or near stream channels without prior consultation with the appropriate conservation authorities. Any water areas drained to facilitate construction will be reestablished to their preconstruction water levels and flow characteristics consistent with landowner wishes. Cofferdams or other diversionary techniques to lay pipe across streams will be used where necessary and practical to permit flow in one part of the stream while construction work is being performed in another part. Care will be taken to avoid oil spills and other types of pollution in streams and other bodies of water and their immediate drainage areas.

During the operational phase of the project, access roads and service roads will be maintained with proper cover and water bars and the proper slope in order to minimize soil erosion. Once a cover of vegetation has been established on rights-of-way and other disturbed lands it will be properly maintained. If and when chemicals are used for weed control, they will be applied at such times and in such a manner as to minimize the impact of temporary discoloration of foliage. During inspections of rights-of-way, attention will be given to locate gullies and fallen timber

and to observe the condition of the vegetation. The use of aircraft will be encouraged to inspect and maintain rights-of-way. In areas adjacent to aboveground facilities, appropriate landscaping will be installed where practical to enhance the appearance of such facilities, consistent with operating needs. Yards and surrounding areas will be kept clean and free of unused or discarded materials.

The design and operation of aboveground facilities will conform to all applicable air and water quality standards.

2. Air

a. Control Technology

The proposed gas treatment facility will emit sulfur oxides, nitrogen oxides (NO_x), carbon monoxide (CO), hydrocarbons (HC), and small amounts of particulates. Currently, only one pollutant, SO_2, has been identified as being emitted in excess of 100 tons per year. Therefore, the proposed plant is considered a major source for this pollutant and will require Prevention of Significant Deterioration (PSD) review in compliance with 40 CFR 52 and Section 24, Wyoming Air Quality Standards and Regulations.

Emission rates for all pollutants will be available upon completion of the engineering process design. NO_x, CO, and HC will be emitted from process utilities, i.e. boilers and heaters. Once emission rates have been defined, an analysis will be performed on a pollutant specific basis to determine applicable PSD requirements.

The proposed plant will utilize Best Available Control Technology (BACT) to reduce emissions in accordance with Section 24 of the Wyoming Air Quality Standards and Regulations as contained in the Wyoming State Implementation Plan which has been approved by the United States Environmental Protection Agency.

Currently, there are no New Source Performance Standards for sulfur recovery plants. However, numerous emission control strategies have been proven and applied as BACT at similar gas treatment facilities. The proposed plant will utilize the Claus process to recover elemental sulfur from the H_2S-bearing acid-gas stream. To further reduce SO_2 emissions to the atmosphere, a cleanup process will be used to clean up the tail gas from the Claus plant. The emission control strategy consists of a two stage Claus plant with Amoco's Cold Bed Absorption (CBA) process. The two stage Claus plant will have a sulfur recovery efficiency of 95% and with the addition of the CBA tail-gas cleanup process, this recovery efficiency will increase to approximately 98.6% or better. Additional tail-gas cleanup processes, are being studied. The ultimate emission control technology applied to the proposed plant will be determined by the BACT analysis contained in the PSD permit application. The BACT analysis will address the technological question of whether the CBA or other processes represent BACT considering the economic, energy, and environmental impacts associated with each.

b. Secondary Air Quality Impacts

Secondary air quality impacts (fugitive dust, tailpipe exhaust emissions, etc.) from transportation may be analyzed separately from the proposed plant emissions if found to be significant. However,

transportation routes will be paved to reduce fugitive dust emissions to insignificant levels as well as to provide year-round access. Vehicle exhaust emissions will result in insignificant impacts. If the preceeding emissions are confined to constricted valley situations, secondary impact modeling may be performed as determined by the Wyoming Department of Environmental Quality. During the construction phase of the proposed project, fugitive dust levels will increase, however this will be a short term impact until the completion of construction.

3. Water

a. Surface

Surface waters will be protected during well and pipeline construction as described in Section I.F.2.c. Sediment barriers and berms will be placed where necessary to prevent excess siltation to the streams. No discharges of any nature will be permitted to reach a flowing stream.

Both the construction and operational phases of the plant will require that a drinking water system and a domestic sanitary waste system be installed. A drinking water system will require a water treatment facility that will provide at least a settling system, charcoal filtering, and chlorinating treatment process. Bacteriological, turbidity and nitrate monitoring will be incorported to comply with the provisions of the Safe Drinking Water Act.

The construction camp will require approximately 225,000 gallons/day. The source of this water will be determined at a later date and a temporary permit (7,000 b/d) to appropriate water will be obtained. Approximately 288,000 gallons/day will be required for plant operation.

A Permit to Construct, Install, or Modify Public Water Supplies and Wastewater Facilities will be secured from the Wyoming Department of Environmental Quality to install the wastewater facilities.

Future studies of soil characteristics, groundwater table, etc. will determine whether a wastewater lagoon or a septic drain system would be more feasible.

b. Subsurface

No impact is anticipated to the subsurface waters as a result of the gathering system facilities. The reserve pits and dehydrator pits at the wellhead locations will be lined if necessary to prevent contamination of subsurface waters. Pipeline construction will not adversely affect groundwater. Construction will not have any long term effects on groundwater.

During operation of the plant, industrial waters may be discharged to the subsurface through deep injection wells. This process will not affect local groundwater supplies since the depth of the injection will be below the deepest aquifer in the area. A Groundwater Pollution Control Permit will be obtained from the Wyoming Department of Environmental Quality prior to any discharging from the plant.

The construction camp will not have any effect on subsurface waters in the area. If a septic drain system is used for wastewater disposal, it will be designed to prevent contamination of subsurface waters.

4. Socio-Economic

During the construction phase of the project it has been estimated that up to 1000 workers will be present at one time. To reduce the impact on the local communities, these workers will be quartered in a construction camp which will be located near the Craven Creek plant site.

The camp will be as self-sufficient as possible, and nave its own water and sewage system. It will be a motel style construction rather than dormitory style. This style has proven to be better for worker morale. There will also be spaces available in the camp for campers, trailers, and recreational vehicles with hook-ups for electricity, water, and sewage. The camp will have dining and recreation facilities, parking for personal vehicles and security to prevent entry of unauthorized personnel. Complete fire and first-aid facilities will be at the camp and plant construction site. These first-aid facilities will include the on-site presence of registered nurses and ambulances on 24 hour call.

The camp will not provide facilities for families. Both male and female workers will have only single occupant rooms. Work schedules will be such that workers will have a sufficient number of days off to leave the camp for visits home.

During the operational phase of the project, the plant and gathering system will employ a maximum of 80 to 100 workers. Local labor will be used to the extent possible. The remainder will be brought in and will be assimilated by local communities.

A comprehensive socio-economic study of the proposed action will be made. This study will address the current situation in the counties and municipalities of the surrounding areas and the impacts the proposed action will have on them. Out of this study will come a plan to mitigate these impacts. This plan will be developed with the cooperation and input of the affected counties and municipalities.

5. H_2S Safety

Hydrogen sulfide is a potential hazard to all those employees in the oil and gas and hydrocarbon processing industry. Depending on concentrations and conditions, exposure to this gas can paralyze or result in fatality in a short period of time.

The basics for H_2S safety in the workplace are education, detection, and protection. Education is the key element. This involves education in the hazards, symptoms, characteristics, safe practices, and treatment of H_2S and the proper use of personal protection equipment. All personnel working in the plant, gathering system, and at the drill rigs will receive such training.

Steps will be taken to inform and educate the public and a contingency plan for public protection will be developed. The plan will include action to alert and protect the public in the event of an accidental release of gas containing H_2S. This plan will be put into effect immediately upon detection of an accident involving H_2S and shall include:

- A provision for alerting the general public and public safety officials that an emergency exists;
- Procedures for requesting assistance and action to evacuate the

public from the area;

- A notification list of appropriate public agencies;
- A map of the area of potential exposure showing the publicly inhabited areas and who to contact at each;
- Names and telephones of residents in the exposed area.
- A plan to exclude the public from an affected area.

Public involvement and education early in the project and a sound contingency plan will be the basis of measures taken to protect the public.

A number of detection systems can be employed, at the drill site, in the gathering system, and at the plant. Detection equipment may consist of personal monitors worn by each worker, battery powered portable monitors, and fixed systems that use a constant power supply. Drilling sites may use one or a combination of any of the three. The plant and possibly the gathering system will use a fixed system. Fixed systems come in three types, electronic devices, lead acetate tapes and electro-chemical. Electronic devices use a semi-conductor electronic chip in the detector head that sends an electronic signal when exposed to H_2S. The lead acetate tape detector uses a motor to move the tape across an exposed area. The tape will turn tan or brown upon exposure to H_2S and the color change is measured by an optical system that converts the discoloration to an electric signal. The signal is remotely monitored. An electro-chemical device uses a motor driven pump to pump air through a measuring system based on the electro-chemical principal of oxidation. H_2S detection and control systems must be reliable with a simplified automatic operation requiring a minimum of operator attendance.

The gathering systems will be in an area of very low permanent population as will the main feed pipeline. This greatly reduces the risk to the public. Pipeline rights-of-way and road crossings will be marked in accordance with U.S. Department of Transportation regulations. All above ground exposures of pipelines containing H_2S will be painted a distinctive color to distinguish them from non H_2S lines.

At drill sites, in addition to detection devices, there will be wind socks for determining wind direction and escape routes, large fans called bug blowers to dissipate the gas, and respiratory protection equipment.

The treatment plant will have respiratory protection equipment for its personnel as well as a plant-wide detection system. Respiratory protection equipment will be strategically placed to be readily accessible to work areas in case of an emergency. Wind socks, alarms, and blowers will also be used.

II

I.L. Interrelationships of Proposed Action with Existing or Other Planned Projects

1. Applicants

The applicants have existing operations in southwest Wyoming. For Exxon, Mobil, and Quasar, this includes ongoing exploration, development, and production of oil and gas. This is in addition to, and is not affected by, the Riley Ridge Project. Northwest is actively engaged in purchasing gas in southwestern Wyoming. As new gas wells are brought in, Northwest competes for purchase of the gas to supply its own customers. This involves developing and expanding gathering systems to connect gas wells with the mainline transportation system. This activity is also ongoing and independent of the Riley Ridge Project.

2. Others

The Lincoln-Uinta Association of Governments (L-UAG), an association of county and municipal governments in Lincoln and Uinta Counties, endeavors to monitor industrial activity and proposed projects. Table I.L.1 is a list assembled by L-UAG of known proposed development projects as of January, 1981.

As part of the acid gas removal system, the plant will produce approximately 240 MMCFD of CO_2. This is a marketable product and Northwest is actively engaged in developing potential buyers. The usefulness of this gas is for enhanced oil recovery. There are significant oil reserves in Colorado, Wyoming, Montana, and North Dakota

Table I.L.1
Proposed Development Projects in
Lincoln and Uinta Counties

	Estimated Number of employees			
	1981		1982	
	Tempo-rary	Perma-nent	Tempo-rary	Perma-nent-
Exploration	200	150	200	150
Drilling	1,280	-	1,430	-
Oil Service Companies	70	1,000	100	1,200
Amoco Whitney Canyon	1,000	20	500	70
Amoco Ryckman Creek	-	25	-	25
Amoco Sulphur Transport	300	5	200	20
Amoco Cave Creek	-	-	500	-
Amoco-Anschutz Ranch East	-	-	-	-
Amoco-Moxa Arch	40	40	-	40
Chevron Carter Creek	1,160	10	860	100
Chevron Painter Reservoir Nitrogen	50	14	-	14
Chevron Painter Reservoir NGL	-	8	-	8
Chevron Sulphur Transport	335	5	185	15
Natural Gas Pipeline Co. Compressor Station near Amoco	90	8	-	-
Overthrust Section Trailblazer Pipeline	20	-	-	
Rocky Mountain Pipeline	40	10	-	-
WY State Highway Dept.	160	-	-	-
Bridger Valley Electrict-line from Texasgulf to Granger plus 2 substations	-	-	-	-

(Table I.L.1 Cont.)

	Estimated Number of employees			
	1981		1982	
	Temporary	Permanent	Temporary	Permanent
Union Pacific Railroad Elkol-Sorenson Mine	-	25 (new)	-	25
Texasgulf	40	39	20	40
Tenneco	-	20	-	40
Simplot Mine	-	-	150	30
Gasohol Plant-Thayne	-	-	90	20

which can be recovered economically by miscible CO_2 flooding. A pipeline system to transport the CO_2 to an oil field is not a part of this project. Northwest will vent the gas to the atmosphere until a buyer installs a pipeline and connects it to the plant.

Helium may be sold at the plant to a future buyer who would purify it for commercial and industrial use. This is dependent upon the outcome of pending Federal helium conservation legislation. The purification operation will, of necessity, take place adjacent to Northwest's plant but will not be a part of this project.

II. Alternatives

A. Alternative, #1, East Dry Basin

The East Dry Basin site will be located in the general area of Sections 33 and 34 of T.29 N., R.112 W., and Sections 5 and 6 of T.28 N., R.112 W.; all in Sublette County, Wyoming. See East Dry Basin Alternative map in the attached map pocket. Dry Basin is roughly 12 miles east to west and two to three miles wide. The site area is about 300 feet below the north rim and a mile to a mile and a half away. The south rim is composed of separate but closely spaced mesas rising to 7200 to 7600 feet. Elevation of the site area is between 6900 and 7000 feet. The floor of the basin in this area is flat and suitable for a construction site. The east end of the basin is open and crossed by U. S. Highway 189 which is a paved two lane road connecting Kemmerer to the south to Big Piney to the north. The highway, which parallels the Green River, is approximately four miles from the site area and the river is another half mile further.

The site area is public land under BLM management. Land use is primarily oil and gas production with numerous wells and storage tanks in evidence. Minor usage constitutes grazing and wildlife. The communities of Big Piney and Marbleton are eight miles to the north, La Barge is 13 miles due south. These are small communities with populations of no more than 1000 each. The oil and gas industry is not new to these communities. For the last 30 years oil and gas production has been an integral part of their lifestyle.

Except for the southern 1/4 of the site, which slopes upward to the south to mesas south of the site, the area is relatively flat and

level. Soils exposed across the relatively flat, northern portions of the site below 6900 feet, appear to consist primarily of very silty and clayey sands with some silty, sandy clayey layers, lenses and pockets. Similar soils are also exposed in the banks of washes that trend across the site from east to west. These washes are intermittent and eroded to depths of 4 to 10 feet below the surrounding terrain. Most of the soils across this flat portion of the site are alluvially deposited soils and are at least 10 feet thick. Weathered claystone and sandstone bedrock is exposed at the ground surface and upward sloping ground along the southern portions of the site. Bedrock underlying the area is the sandstone sequence of the Wasatch Formation which comprises interbedded, fine to coarse grained sandstones, sandy siltstones and claystones. The clayey phases of the bedrock will probably exhibit a low to moderate swell potential upon wetting. The alluvial soils found over the bedrock across most of the northern portions of the site probably consist primarily of very clayey sands with silt and clay lenses and layers, and may be compressible in the range of expected foundation loads.

All land west of the Green River is considered critical winter habitat by the Wyoming Game and Fish Department for elk, mule deer, and antelope. Critical moose habitat is in the floodplain of the Green River. Vegetation in the site area consists primarily of sagebrush with a mixture of short grasses. Dry Basin, because of its dry nature, has less dense vegetation than much of the surrounding area. Endangered species reported as having been observed in the area are black-footed ferret, bald eagle, and peregrine falcon. Ferret sightings have been made along the

highway between La Barge and Big Piney. The peregrine falcon migrates through this area but does not nest here. Bald eagle sightings have been made and nests found in the East Dry Basin area.

As shown on the East Dry Basin Alternative map, a plant site at that location will be the closest to the gas field. This is an advantage in that there will be less disturbance of the environment for large diameter pipelines. This advantage is offset by the necessity of shipping the sulfur produced to the closest railroad which is over 40 miles to the south. Sulfur would be shipped by truck to a load-out point on the Union Pacific Railroad. This would require from 10 to 15 round trips per day which would have a serious impact on the highway. Three other alternatives considered were to build a railroad to the plant site, a distance of 95 miles; to stockpile the sulfur for an unknown period of time until the economics improve; or to stockpile the sulfur and not sell it.

A plant at this site, with a railroad, will disturb 2178 acres which is 654 more acres than the Craven Creek site and 138 acres more than the Buckhorn site. After construction and reclamation of construction acreage, the plant, well head facilities, and railroad will occupy 827 acres. This is 518 more acres than the Craven Creek site and 153 acres more than Buckhorn.

The plant size, configuration, and resources needed for the plant will be the same as for the prime site. Electric power will be brought in from Utah Power and Light Company's Naughton generating plant south of Kemmerer. Water for construction and operation may come from either groundwater or the Green River.

B. Alternative, #2, Buckhorn

The Buckhorn site area is in Sections 16, 17, 20, and 21 of T.28 N., R.110 W., in Sublette County. See Buckhorn Alternative map in the attached map pocket. It is the only site alternative on the east side of the Green River. There are two bridges across the Green River, one near La Barge, the other near Big Piney. Neither bridge is considered strong enough to withstand the heavy use that would occur during plant construction.

The site area is on a broad, flat north-south trending drainage divide seven to eight miles from the Green River. The elevation is 7250 feet with no nearby elevations any higher. All streams in the vicinity are ephermeral.

Land ownership is public with the BLM controlling all but Section 16 which is owned by the state of Wyoming. Land use is oil and gas production, grazing, and wildlife.

Soils exposed at the surface of this gently rolling site are sandy, silty clays and fine, very clayey sands. The soils appear to be residual soils weathered from the underlying bedrock. Numerous angular sandstones and siltstone rock chips and occasional outcrops of highly fractured siltstone are found at the ground surface in some areas. The bedrock, which is the Laney Shale member of the Green River Formation, underlies the site at shallow to moderate depths. Based on bedrock exposures in the valleys to the north and below the Buckhorn Site, the Laney Shale Member of the Green River Formation in this area consists primarily of fine grain, very sandy claystones with some sandstone and siltstone lenses and layers.

The wildlife situation on the east side of the Green River is not as critical as the west side. The area is antelope habitat but it is not critical. However, it is in the area of crucial sage grouse winter range. The Green River, which will be crossed twice, by pipelines, contains the Bonneville cutthroat trout which is being considered for listing as threatened or endangered. Other wildlife situations that would have to be addressed are the possible presence of the black footed ferret associated with adjacent white tailed prairie dog towns, and bald eagle winter nesting along the east side of the Green River. Vegetation throughout consists primarily of sagebrush with a mixture of short grasses.

This site is more remote than Craven Creek or East Dry Basin. It is closer to the gas field than Craven Creek yet farther than East Dry Basin which endows it with some of the good and bad points of both. Truck transport of sulfur will be for a longer distance than East Dry Basin; however, a rail line will be 25 miles shorter. The alternatives to trucking sulfur from this site are the same as for the East Dry Basin site.

A plant at this site, including railroad, will disturb 2040 acres, which is 516 more than Craven Creek and 138 less than East Dry Basin. After construction and reclamation of construction acreage, the plant, well head facilities, and railroad will occupy 674 acres. This is 365 more than Craven Creek and 153 less than East Dry Basin.

Plant size, configuration, and resources needed for the plant will be the same as for the prime site. Electric power will be brought in from Utah Power and Light's Naughton generating plant south of Kemmerer. Water for construction and operation may come from either groundwater or the Green River.

C. Other Alternatives

Three other alternatives were evaluated but subsequently eliminated. These three sites and their locations are:

Site	Location
Big Mesa	Portions of Secs. 23 & 24, T.28 N., R.113 W. and Sec. 4, T.27 N., R.113 W.
Jones	Portions of: Secs. 13, 14, 23, 24, T.28 N., R.114 W.
W. Dry Basin	Portions of : Secs. 33 & 34, T.29 N., R.113 W.

Big Mesa is a 600 foot high mesa approximately 3/4 of a mile wide and roughly two miles long, north to south. The surface is flat with a gentle slope to the east and the east side cut by several large drainages. The west side is a steep cliff face. There are several wells on top of the mesa with access from the east side by a graded dirt road.

This site was originally chosen because of its elevated location and flat surface. The elevated location was considered desirable to enhance emission dispersion. However, preliminary air quality modeling indicated that incremental standards for SO_2 would either be borderline or exceeded at this site. Other problems included a shallow depth to bedrock, access during winter months on a steep road, sulfur removal, critical deer habitat, and water supply.

The Jones site is in a narrow valley with high mountains on the east and west sides. The surface is steeper and more rugged than any of the other sites but there is adequate space for locating a plant. A well

maintained dirt road provides access to the area.

Because of the topographic setting and close proximity to mountains, ground level concentrations of SO_2 would be in excess of the state's incremental standard. Also, the topographic setting produces a microclimate which is much wetter in the winter than the other sites.

West Dry Basin has a similar topographic setting as East Dry Basin and is approximately seven miles from it. Access is by a paved road. The west end of Dry Basin is close to the mountains and in particular Cretaceous Mountain. This proximity causes SO_2 emissions to exceed allowable incremental standards. This site also has white-tailed prairie dog communities with the possible presence of black footed ferret, an endangered species.

These three sites were eliminated primarily because their topographic setting prevented the attainment of air quality standards. Preliminary modeling indicated that a plant at any of these sites would not meet the 24 hour PSD Class II SO_2 incremental standard of 91 micrograms per cubic meter. Other factors included depth to bedrock, climate, access and wildlife.

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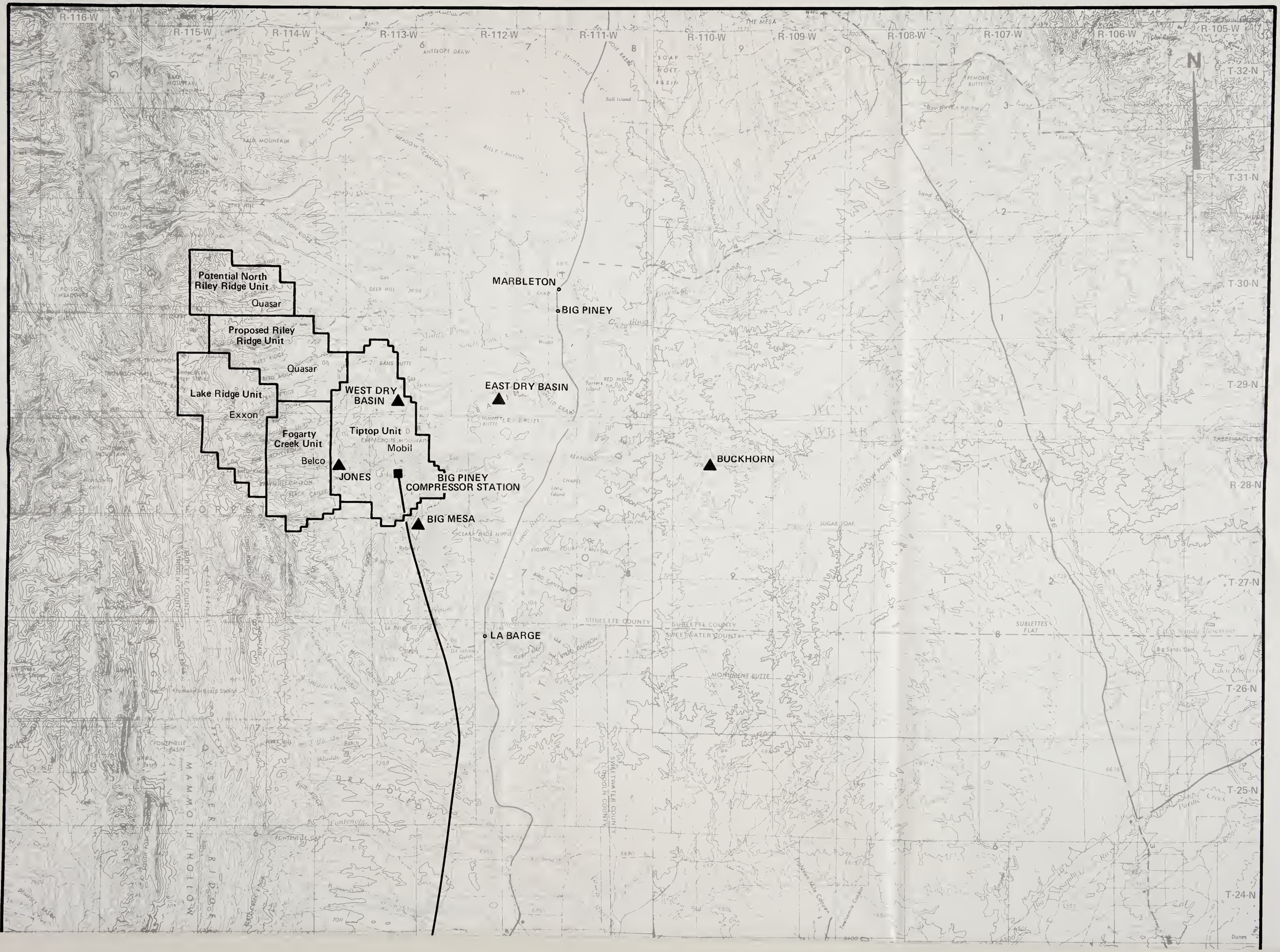
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Quasar
Proposed Riley Ridge Unit
Quasar
Lake Ridge Unit
Exxon
Fogarty Creek Unit
Belco
Tiptop Unit
Mobil
WEST DRY BASIN
JONES
BIG PINEY COMPRESSOR STATION
BIG MESA
MARBLETON
BIG PINEY
EAST DRY BASIN
BUCKHORN
LA BARGE
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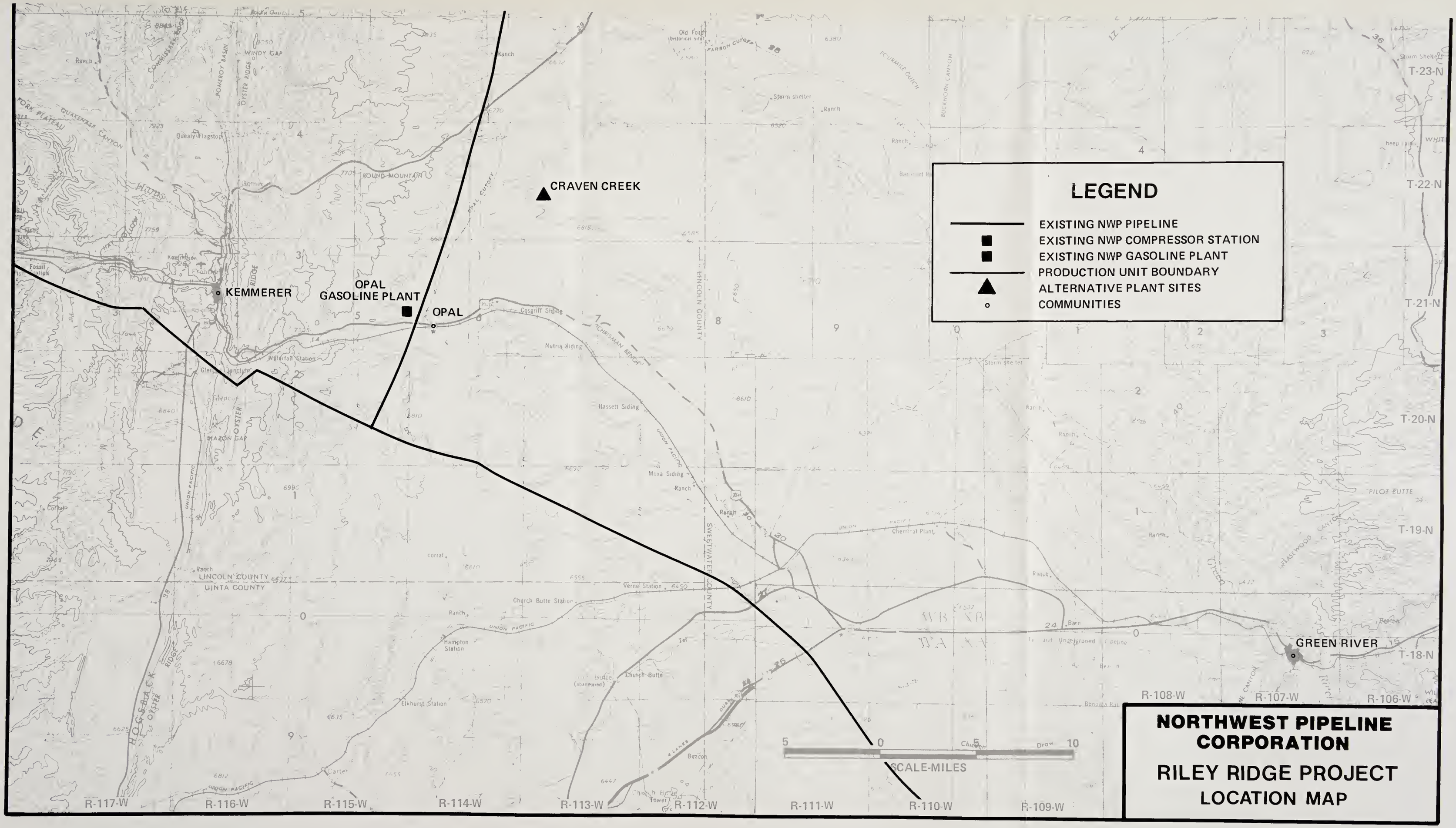
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EXISTING NWP COMPRESSOR STATION
EXISTING NWP GASOLINE PLANT
PRODUCTION UNIT BOUNDARY
ALTERNATIVE PLANT SITES
COMMUNITIES
CRAVEN CREEK
KEMMERER
OPAL GASOLINE PLANT
OPAL
GREEN RIVER
LINCOLN COUNTY
UINTA COUNTY
SWEETWATER COUNTY
T-23-N
T-22-N
T-21-N
T-20-N
T-19-N
T-18-N
R-117-W
R-116-W
R-115-W
R-114-W
R-113-W
R-112-W
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SCALE-MILES
NORTHWEST PIPELINE CORPORATION
RILEY RIDGE PROJECT
LOCATION MAP

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BIG PINEY
COMPRESSOR STATION
BIG PINEY
SUBLETTE COUNTY
SWEETWATER COUNTY
SUBLETTES
FLAT
MONUMENT BUTTE
SUGAR LOAF
RED HILL
DEER MILL
RANS BUTTE
CHIMNEY BUTTE
CREPUSCULUS MOUNTAIN
BALD MOUNTAIN
FONTENELLE MOUNTAIN
MOUNT COFFIN
MOUNT THOMPSON
STAR HILL
ANTELOPE DRAW
MEADOW CANYON
BILLY CANYON
JOHNSON RIDGE
MACDONALD DRAW
REARDON
CHAPEL
CLARA BIRDS NIPPLE
BIRD CANYON
FONTENELLE BASIN
FONTENELLE GAP
DRY HOLLOW
MAMMOTH HOLLOW
OYSTER RIDGE
LITTLE MUDDY CREEK
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LINCOLN COUNTY
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Big Sandy Dam
Eden Reservoir
Eighteen Mile Canyon
Tabernacle Butte
Yellow Point Ridge
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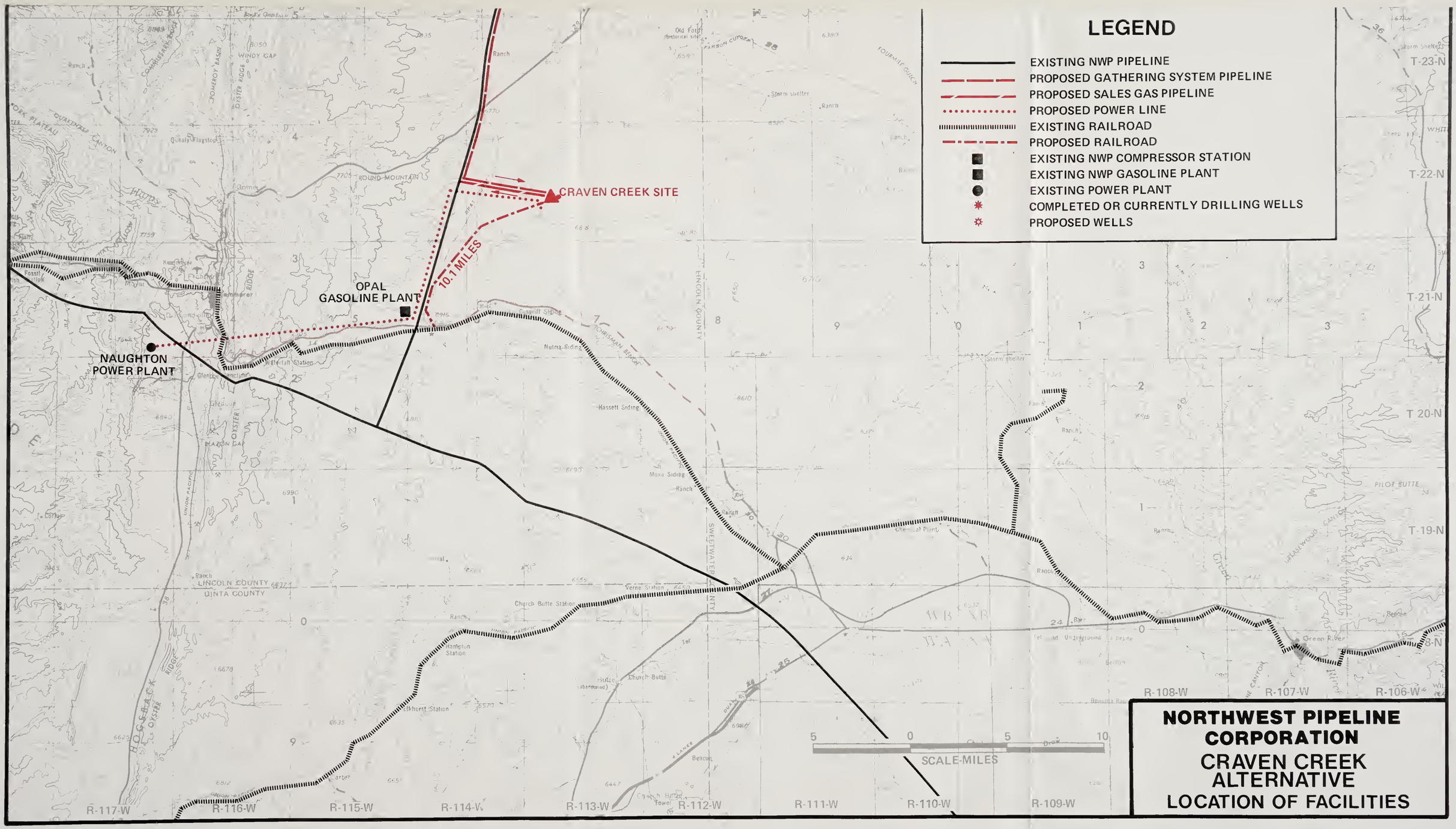

NORTHWEST PIPELINE CORPORATION

CRAVEN CREEK ALTERNATIVE

LOCATION OF FACILITIES

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BIG PINEY
COMPRESSOR STATION
SUBLETTE COUNTY
SWEETWATER COUNTY
LINCOLN COUNTY
SUBLETTES FLAT
MONUMENT BUTTE
DEER HILL
RANS BUTTE
RED HILL
BEARCLOFF
CHAPEL
SUGAR LOAF
FONTENELLE BASIN
MAMMOTH HOLLOW
OYSTER RIDGE
DRY HOLLOW
FONTENELLE GAP
FONTENELLE RESERVOIR
Big Sandy Reservoir
Eden Reservoir
Big Sandy Dam
Fontenelle Guard Station
Sinclair Wash Ranger Station
Twelvemile Canyon
Fifteen Mile Canyon
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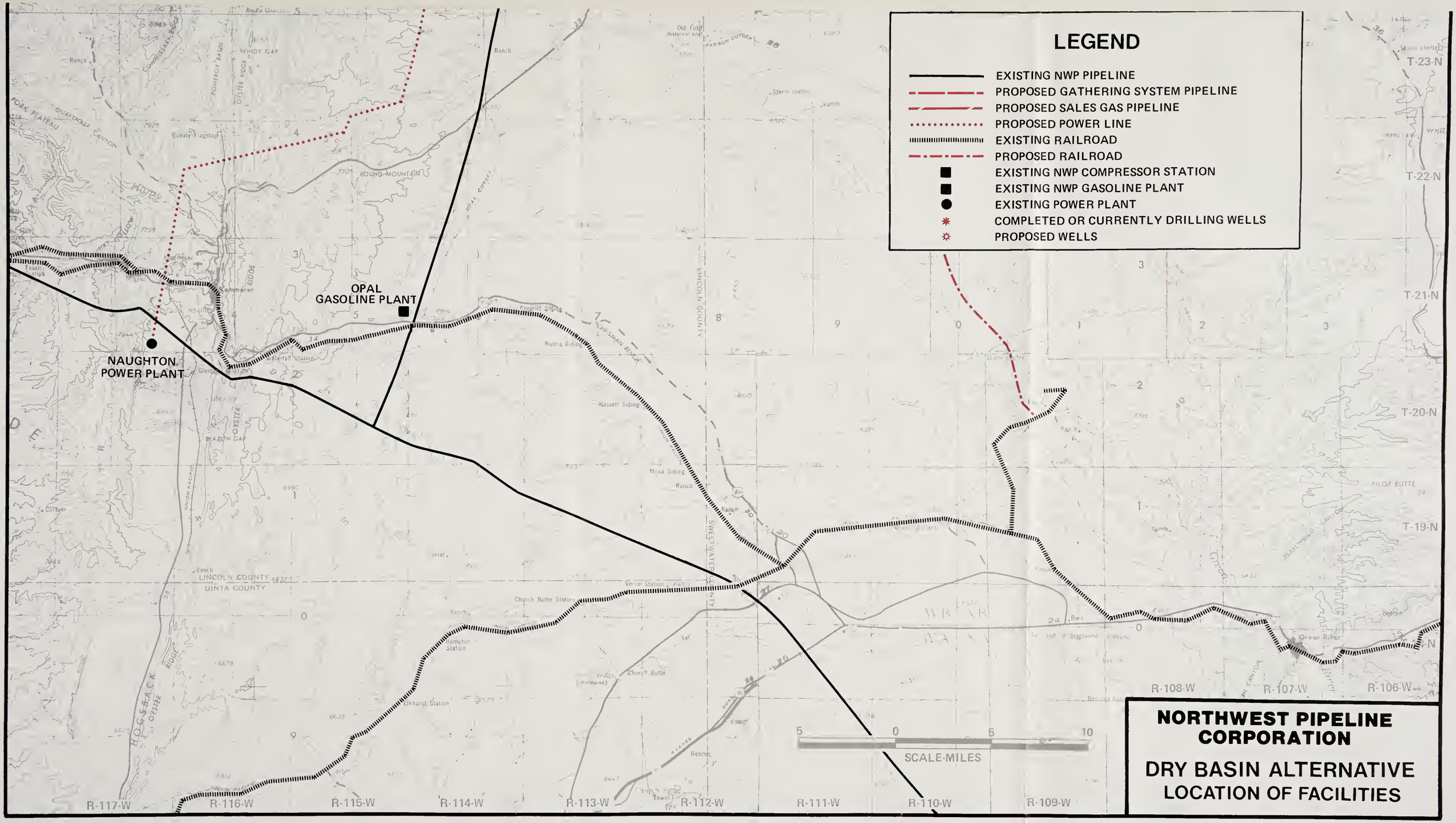
LEGEND
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PROPOSED GATHERING SYSTEM PIPELINE
PROPOSED SALES GAS PIPELINE
PROPOSED POWER LINE
EXISTING RAILROAD
PROPOSED RAILROAD
EXISTING NWP COMPRESSOR STATION
EXISTING NWP GASOLINE PLANT
EXISTING POWER PLANT
COMPLETED OR CURRENTLY DRILLING WELLS
PROPOSED WELLS
OPAL GASOLINE PLANT
NAUGHTON POWER PLANT
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DRY BASIN ALTERNATIVE
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BIG PINEY
COMPRESSOR STATION

BUCKHORN SITE

LEGEND

- EXISTING NWP PIPELINE
- PROPOSED GATHERING SYSTEM PIPELINE
- PROPOSED SALES GAS PIPELINE
- PROPOSED POWER LINE
- EXISTING RAILROAD
- PROPOSED RAILROAD
- EXISTING NWP COMPRESSOR STATION
- EXISTING NWP GASOLINE PLANT
- EXISTING POWER PLANT
- COMPLETED OR CURRENTLY DRILLING WELLS
- PROPOSED WELLS

OPAL GASOLINE PLANT

NAUGHTON POWER PLANT

LINCOLN COUNTY
UINTA COUNTY

T-23-N
T-22-N
T-21-N
T-20-N
T-19-N

R-117-W R-116-W R-115-W R-114-W R-113-W R-112-W R-111-W R-110-W R-109-W R-108-W R-107-W R-106-W

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NORTHWEST PIPELINE CORPORATION

BUCKHORN ALTERNATIVE
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